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A Systems Summary Description.

Franklin County Schools, Columbus, Ohio. Area Education Information Center.

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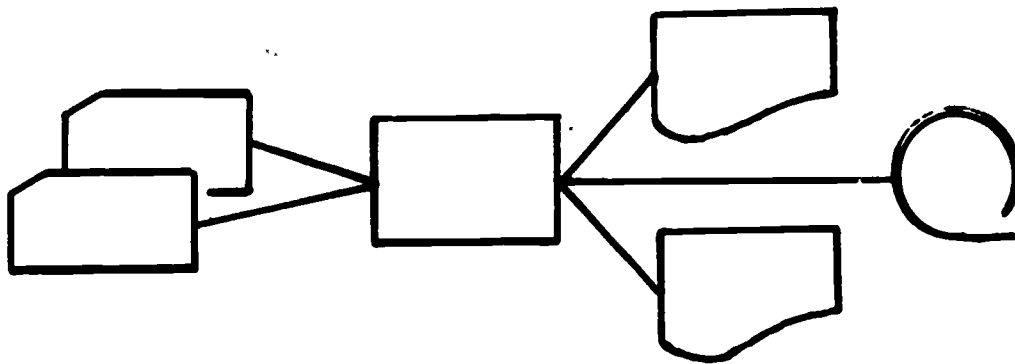
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The pupil personnel accounting system developed and used by Ohio's Franklin County schools is presented. Three main areas are described: (1) the construction, use, and maintenance of the student data base; (2) input, school and center processing, and output routines involved in progress reporting, and (3) procedures for dealing with pupil class assignment (scheduling) functions in secondary schools. Examples of materials and outputs obtained are provided. This study was funded under a Title III, Elementary and Secondary Education Act grant. (PS)

A SYSTEMS

SUMMARY DESCRIPTION



A TITLE III PROJECT OF THE

AREA EDUCATIONAL INFORMATION CENTER

FRANKLIN COUNTY SCHOOLS, 46 EAST FULTON STREET, COLUMBUS, OHIO 43215

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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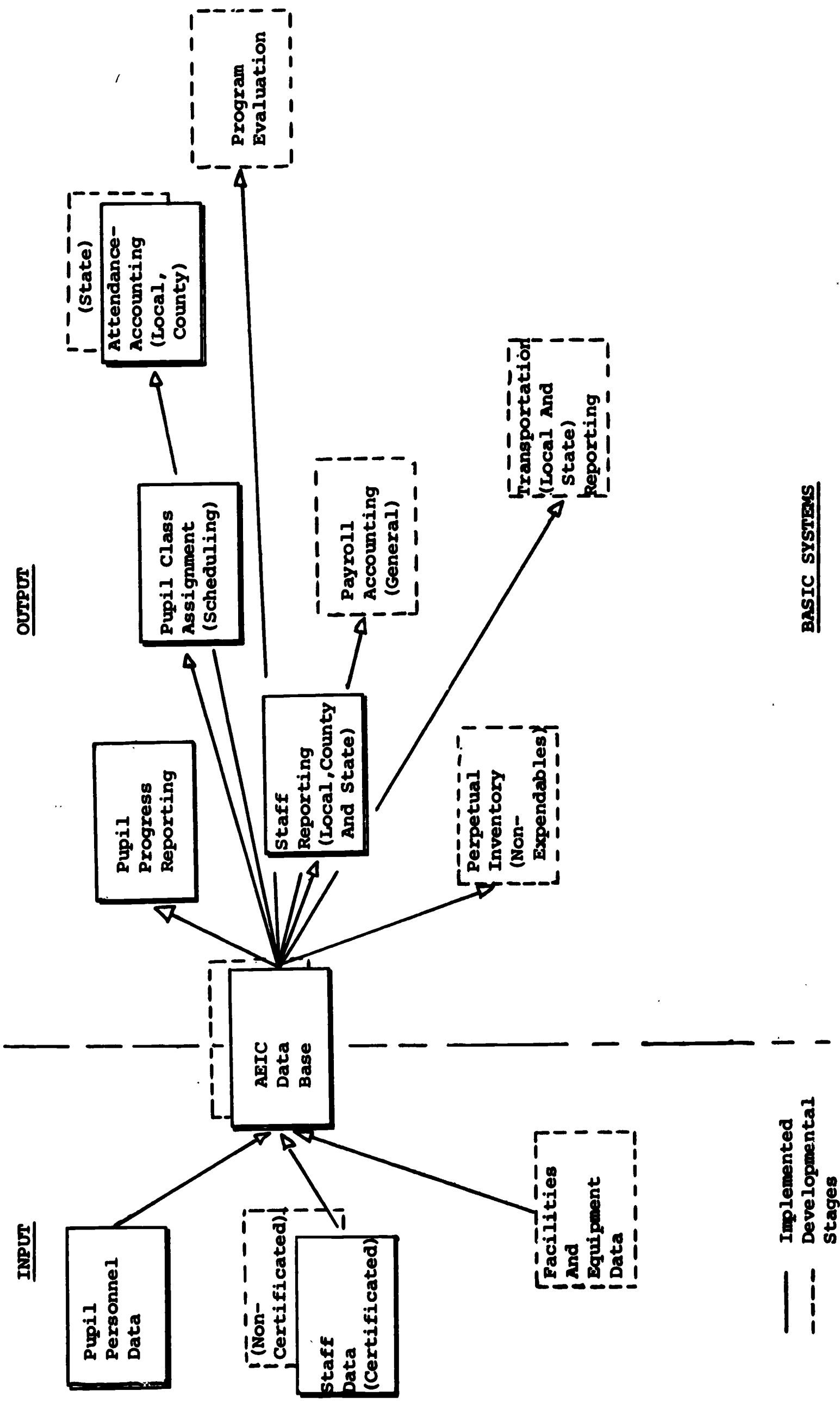
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A SYSTEMS SUMMARY DESCRIPTION

Quite often during the early stages of operation, we here at the Area Educational Information Center of the Franklin County Schools received requests for literature describing our progress in systems development. Often our response was not what we considered adequate.

In an attempt to provide a fairly comprehensive description, yet one that is not laden with technical detail, we have assembled this Systems Summary Description which deals only with the pupil personnel accounting systems we employ at present. We do, however, intend to expand upon this summary from time to time to include any and all systems we implement.

We feel that educational data processing has made much progress in a relatively short period of time. We also feel that an exchange of ideas and experiences among educators with common interests in this area is the best vehicle for assuring continued progress in the field. Therefore, we welcome visitations and/or inquiries by all interested parties.



BASIC SYSTEMS

SECTION 1

PUPIL DATA BASE

Collection and Storage of Pupil Master Data for the Data Base

Section I Pupil Data Base

This section describes the construction, use, and maintenance of the student data base. This base eventually becomes part of the total AEIC Data Base discussed later.

DATA COLLECTION (Modification Pending)*

The necessity for collecting and maintaining complete and accurate basic data for each pupil cannot be overemphasized. Thus, information of this nature, which we will call pupil master data, is held to a minimum, collected by a relatively simple form and read onto magnetic tape via card input. The form utilized for this purpose (6710A) provides space for collecting data for several students on each sheet and is used in both the elementary and secondary systems.

Form 6710A	
ITEM	DATA DESCRIPTION
School	Enter the school name as it will appear on all reports such as progress report, schedule, etc.
School Code	Three digit numeric code assigned your building
Student Name	The name of the student should be entered in last, first, middle initial sequence. Legal and not "nicknames" should be entered.
Birth Date	Describe the birthdate in month, day, year sequence. A zero should be placed before single digit dates. Example: May 7, 1959, would be described as 05/07/59; December 2, 1960, as 12/02/60, etc.
Parent and/or Guardian Name (Optional)	This data is for optional use by the schools. Enter the name of the head of the household in last, first, and middle initial sequence.
Last Name of Teacher	This data is collected for elementary students only. Secondary schools should omit this item.

COLLECTOR'S SHEET

6710

SCHOOL Anytown High School

1. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.
9/15/49	Jones	James	A	M	Joseph	11	100
TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY		ZIP CODE		
876-1234	5678	Willow Drive	Anytown		60732		

2. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.
TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY		ZIP CODE		

3. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.
TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY		ZIP CODE		

4. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.
TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY		ZIP CODE		

5. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.
TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY		ZIP CODE		

ITEM	DATA DESCRIPTION
Address (Optional)	It is critical that zip code numbers be included for each student.
Telephone Number (Optional)	
Area Code *	Several schools have developed an area-sequence coding system for locating students within an attendance area. If your district utilizes this system, refer to the list of area-sequence codes for your district.
Sequence Code * (Optional)	
Transportation * (Optional)	Place an "X" in the appropriate block(s) and enter the bus number if applicable.
Place of Employment * Father	After entering the place of employment for the father, "X" the Federally Employed block only when the father is employed at an installation which makes the district eligible for aid under PL 874.
Place of Employment * Mother	(Same as above)

Once all student data are reported on 6710A, the first block of the data base is established on magnetic tape. At this point, only those data items reported on 6710A are available.

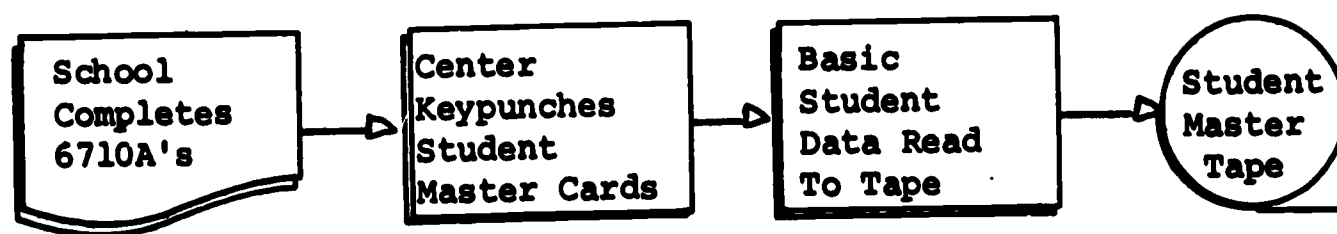


Fig. 1-1 - Beginning Phase of Data Base Construction

UPDATING AND MAINTAINING THE BASE

Assuring that basic data contained in the pupil master data file is accurate, complete, and current is a continual process. Nevertheless, at the beginning of each school year, an update or verification routine is conducted. While this may appear at first to be unnecessary repetition, the effort is more than justified throughout the school year.

ELEMENTARY STUDENT UPDATE

Following the close of school, the elementary principal begins making room assignments for the coming year. This is accomplished through the use of student and teacher master cards.

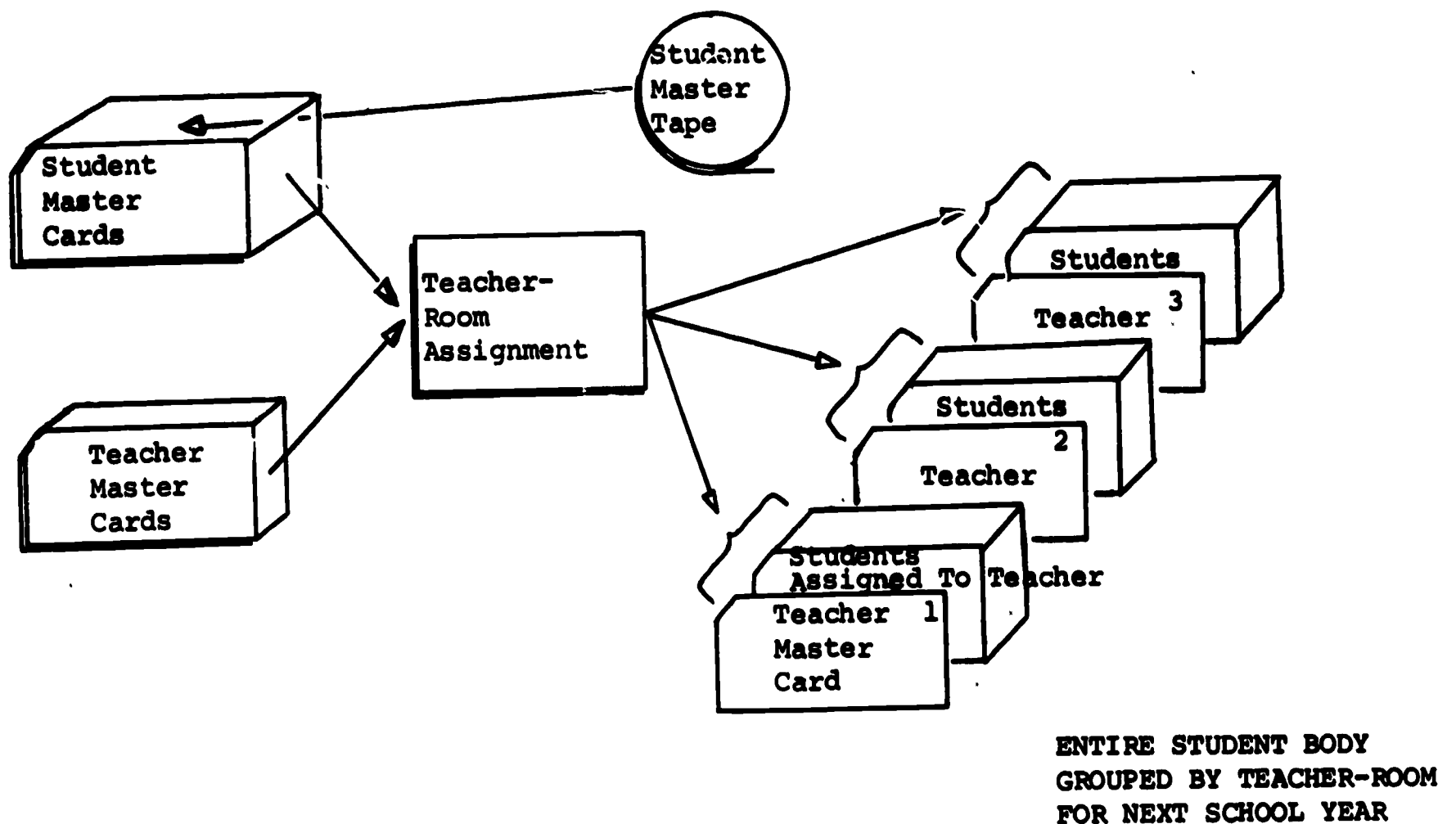


Fig. 1-2 Teacher-Room Assignments For Elementary Pupils

By grouping each student card behind the card of the teacher to which he is assigned for the new school year, the principal physically establishes each class for the coming year. In effect -- scheduling similar to secondary school scheduling.

Concluding this activity, the school returns the grouped cards to the center where they are processed and read back to the student master file for updating.

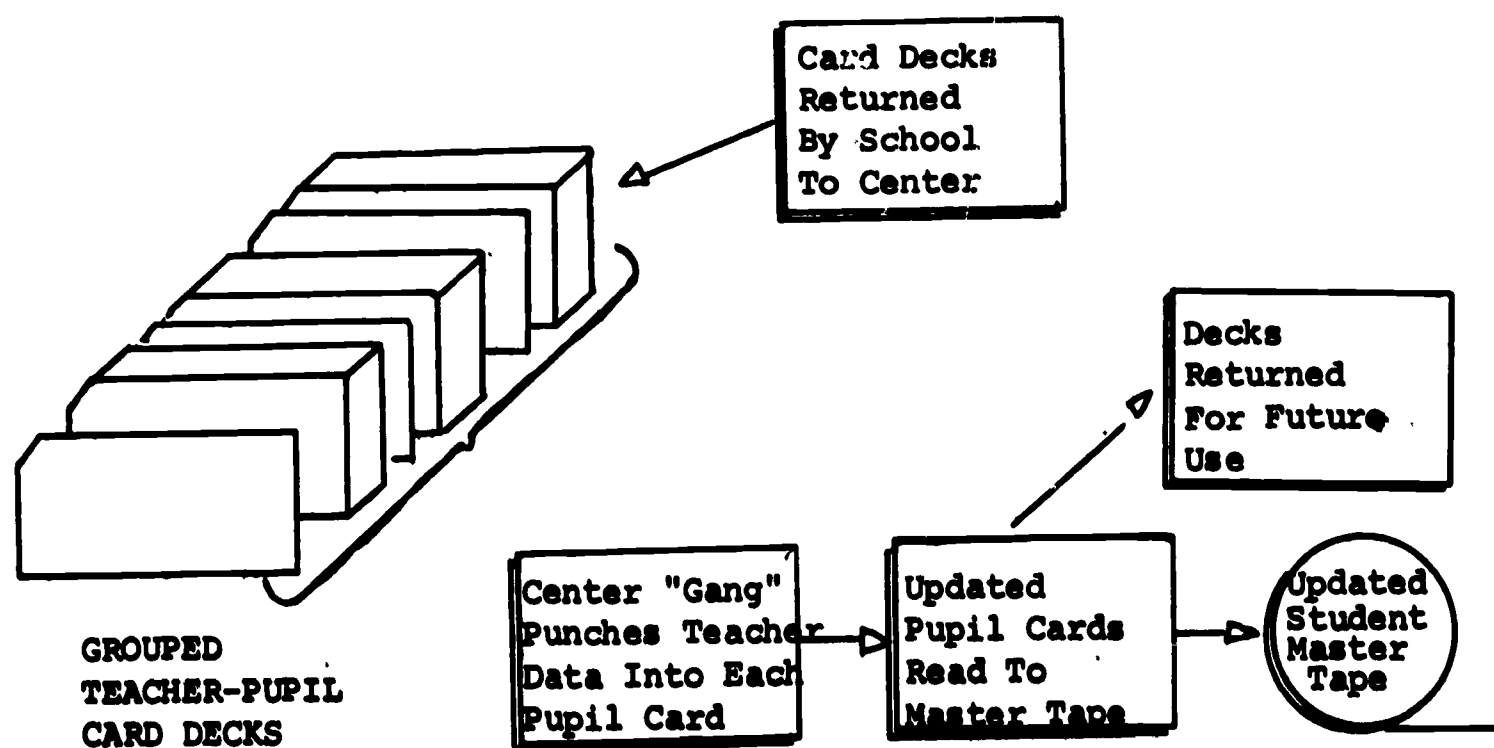


Fig. 1-3 - Student Master Tape Update Begins

From the updated master tape, the principal is furnished class rosters, a student directory, and a teacher room list for the new school year. These listings can be computer printed on Ditto Master stock making reproduction in multiple numbers by the school simple and inexpensive.

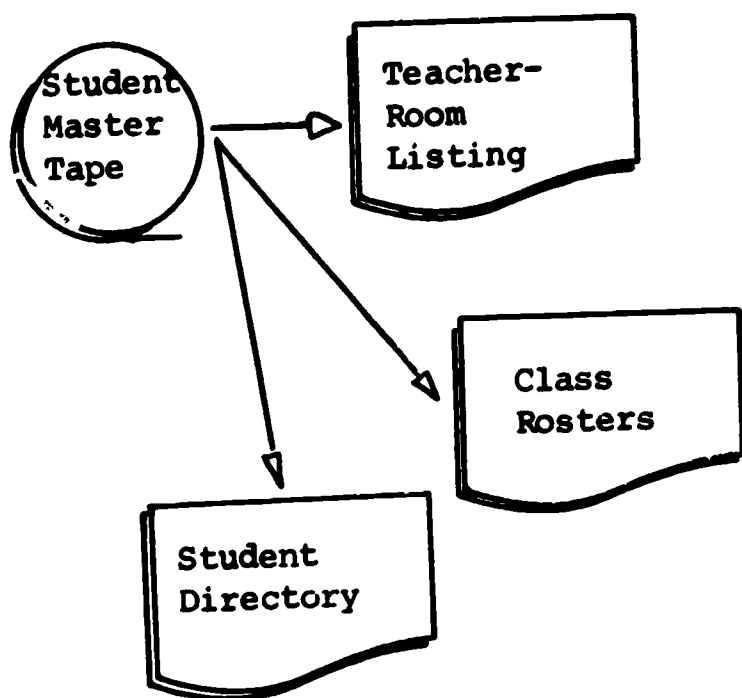


Fig. 1-4 - Listings Supplied Principal

These listings can be provided to the principal in ample time to permit him posting class rosters and publishing such in newspapers before school opens. The teacher-room listing can serve as a "master-schedule" or locator file as can class rosters.

To complete the update routine, during the first week of school, the principal should have all teachers review the pupil-master cards with their students and enter any changes or corrections that might be necessary. Such items as address, telephone number, etc., should be carefully checked. After completing this process, only those cards requiring a change or correction should be returned to the center.

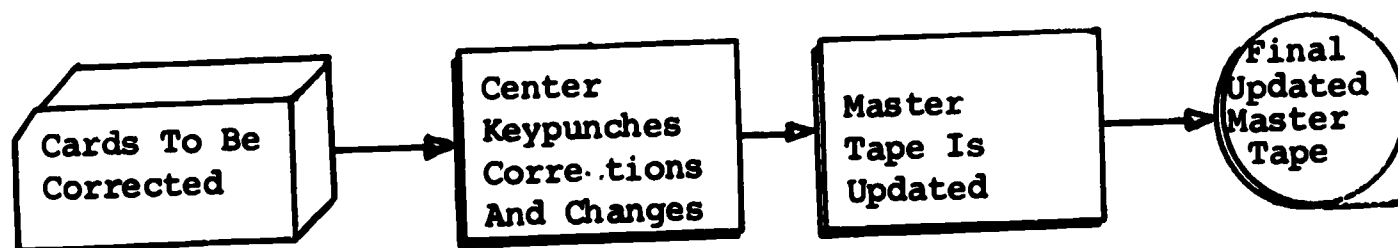


Fig. 1-5 - Final Update Before Progress Reporting Begins

NOTE: An accurate pupil master file is a must before the first reporting period.

SECONDARY STUDENT UPDATE

Since student scheduling provides the student, teacher, and class listings necessary for opening the school year, an update or verification of the student master file is not conducted until the third or fourth week of school. Following the conclusion of the scheduling routine, the student master cards will be returned to the school for this purpose. Once the schedule has "settled down" for the year (student schedule adjustments made, teacher assignments modified, etc.), preparations for the "X-Day routine should begin. Basically this consists of the following two activities:

1. Reviewing student master cards and denoting any changes.
2. Complete Form 6720 (Subject Teacher Report).

(Note: Schools which do not utilize computer scheduling would follow the procedure for updating described in for the elementary schools. "X-DAY" would be conducted in the same manner as for those schools utilizing computer scheduling.)

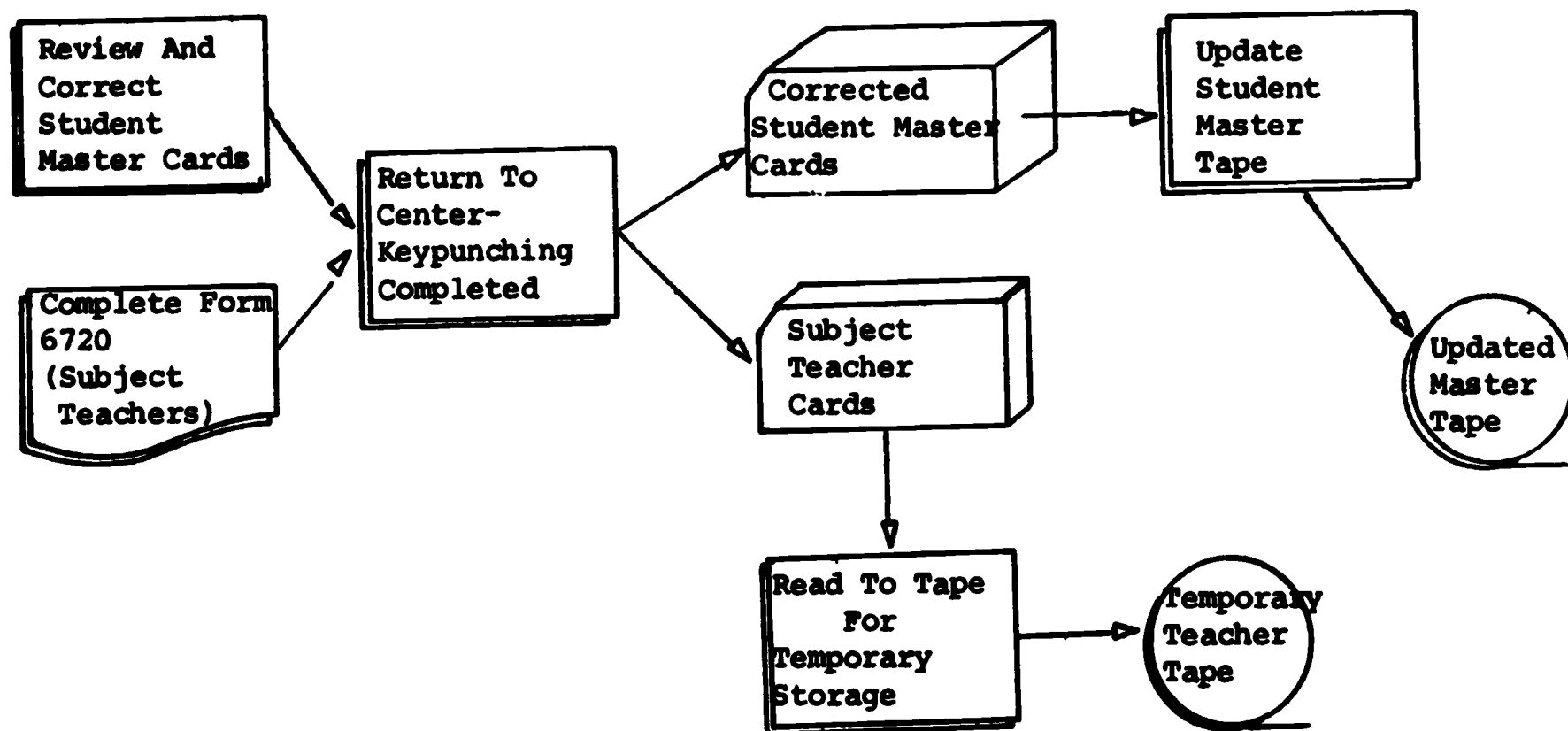


Fig. 1-6 - Updating of Secondary Master File

To prepare the school for "X-DAY", the center, from the master tape, produces ten (10) student "X-DAY" cards. These, along with the subject teacher cards are returned to the school. Student cards are returned in alpha-homeroom order and teacher cards alpha-teacher order. Each teacher and student receives their cards in homeroom on "X-DAY" morning. The following routine (X-DAY) is then executed.

FOR CLASSES MEETING 1st SEMESTER AND/OR ALL YEAR

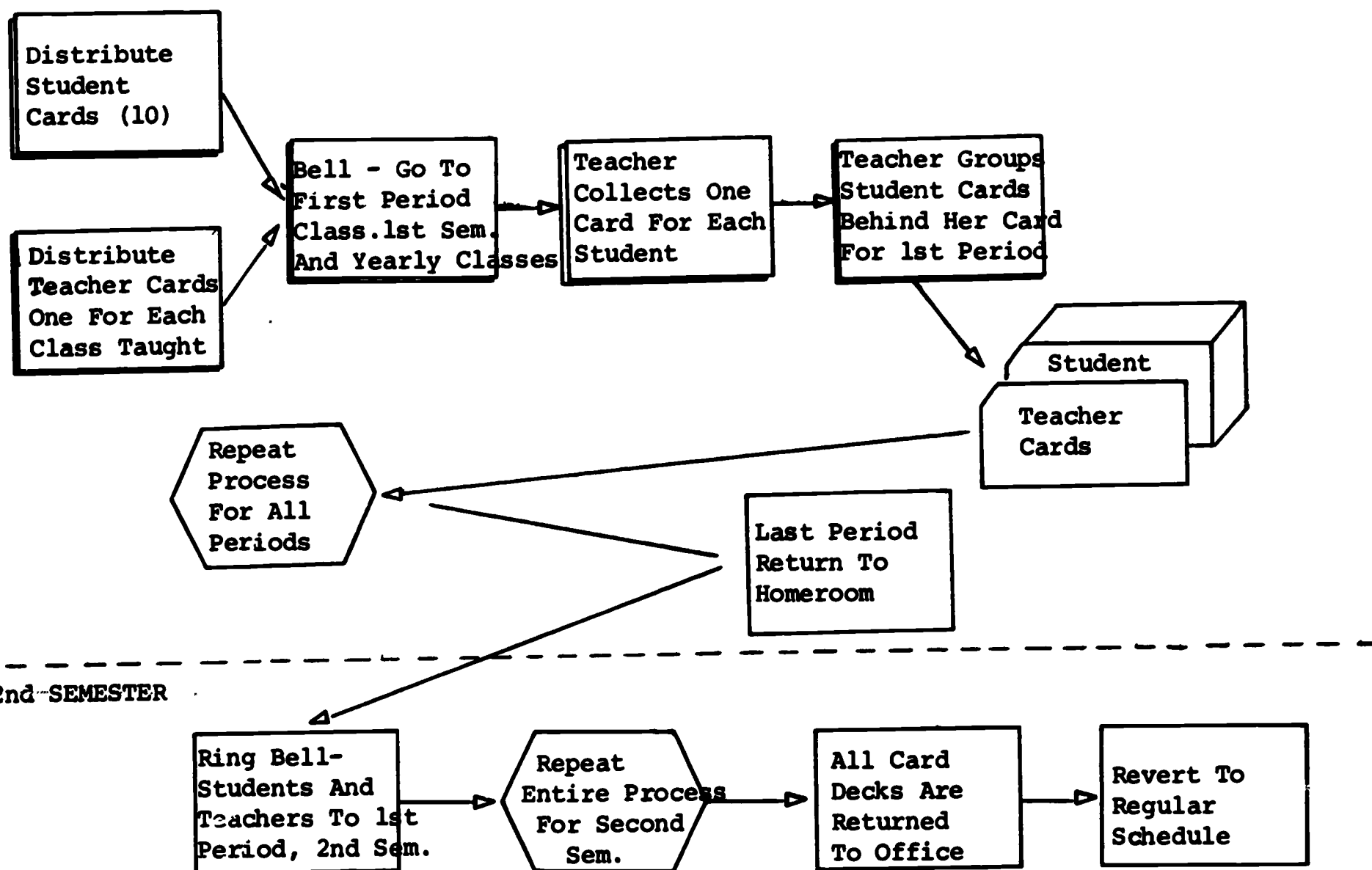


Fig. 1-7 - Secondary "X-Day" Routine

Once all card decks have been returned to the office, the office inserts cards for absentees into the proper decks and returns all decks to the center. All student "X-DAY" cards not used may be retained at the school and disposed of as the school sees fit.

Upon receiving the grouped "X-DAY" decks, the center processes them for reading into the student master files.

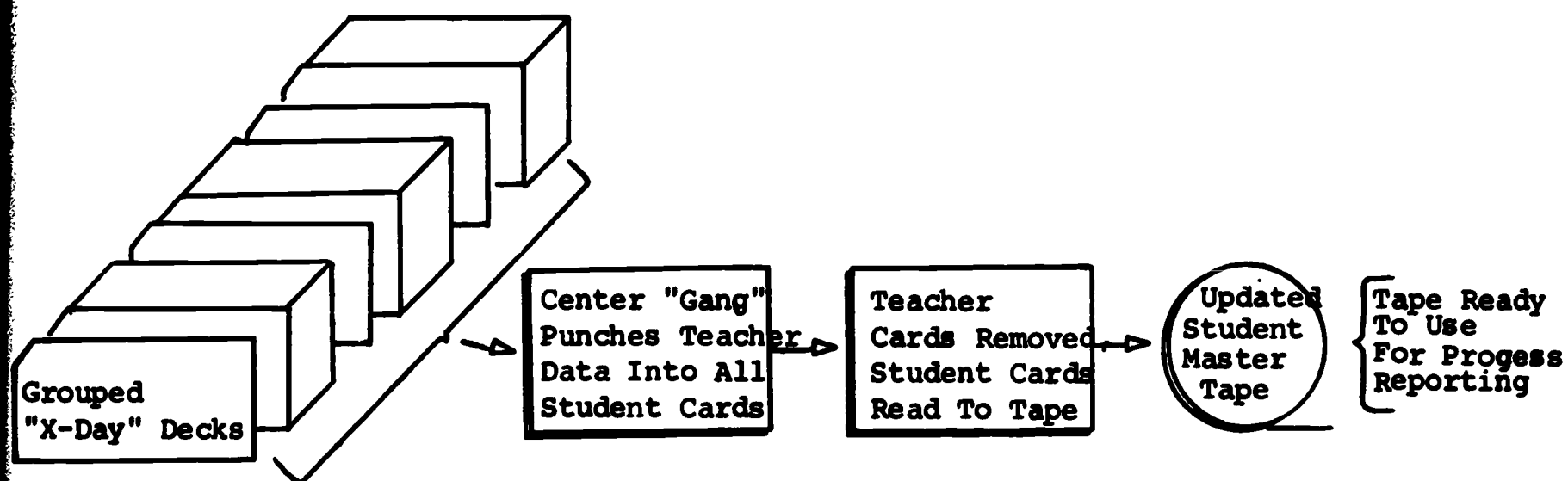


Fig. 1-8 - Processing "X-DAY" Cards

The "X-DAY" routine outlined above is merely a suggested system. Various schools employ variations to this which are quite effective. Such variations are left to school preference. However, it is highly recommended that second semester "X-DAY" be held in conjunction with that for 1st semester and annual classes. Experience has shown that attempting a second "X-DAY" after the second semester has opened creates some problems.

With the conclusion of the "X-DAY" routine and the final up-date, the pupil data base is considered finalized for production of the first progress reporting period.

SECTION 2

PUPIL PROGRESS REPORTING

Pupil Progress Reporting and Accounting Systems

Section II Pupil Progress Reporting

The pupil progress reporting system employed by the Area Educational Information Center is designed to accommodate a wide and varied selection of grading and attendance systems. At present, the center has the capability of dealing with the following situations, or a combination of such:

1. Secondary and/or elementary
2. Six and/or nine-week periods
3. All alphabetic, all numeric, or an alpha-numeric grading system
4. Up to 28 "evaluation areas" for elementary students
5. Up to 12 subject areas for secondary students (More may be accommodated. However, a second grade card is produced if this number is exceeded.)
6. Public, private, city, exempted village, and vocation systems.
(The center does work for at least one of all systems listed above.)

This section defines input, school and center processing, and output routines involved in progress reporting. Since some 60,000 plus student progress reports for 13 independently operated school systems are produced each period, it would be impossible to discuss each individual situation. However, since all basic procedures are identical, some of the more versatile systems are discussed and used as examples in this section.

TEACHER PREPARED INPUT

For the sake of convenience and speed, optical reading is employed by the center for all input to the system. Utilizing a Digitek 100 (tape output) System, the center prepares pre-printed marking sheets which the teacher uses to report student progress to the system.

While the format of the elementary grade sheet differs from that of the secondary grade sheet, the preparation is much the same. The following chart explains the basic differences:

ELEMENTARY	SECONDARY
1. Sheets are printed in alpha-room-teacher sequence	1. Sheets are printed in alpha-subject-teacher (and semester for one one semester courses) sequence.

ELEMENTARY	SECONDARY
2. Each sheet contains the names of six students. Thus the average teacher receives five or six sheets each period.	2. Each sheet contains the names of all students in one class (each period) unless the class exceeds thirty students. In this situation, the class would require two sheets.
3. The teacher receives two sets of sheets for the <u>final</u> period- one for the last grading period and one for the yearly average or final grade.	3. No difference at the close of the school year. Last period and final grades are marked on the same sheet.

Fig. 2-1 - Variation in Systems

Attendance for both elementary and secondary is reported on the same sheet. Format does not differ. The sequence in which the sheets are produced for marking, however, differs according to the specifications of each school. For example, attendance sheets may be printed for marking alpha-by school, alpha-by grade, alpha-by grade-by homeroom, etc. The variations are almost unlimited.

PRODUCING THE SHEETS FOR MARKING

Utilizing the Updated Student Master Tape described in Section I, the center generates pre-printed sheets for marking as illustrated by Fig. 2-2, 2-3, and 2-4. Each sheet contains a Printer-Line Compatable (PLC) grid into which a school number, page number, and grading period "slug" is printed. This grid is used in sorting and editing routines after the marked sheets are returned to the center.

Certain identification information is also printed at the top of each sheet. Each student assigned to a teacher for instruction will be listed on the appropriate sheet.

1. Use pencil only for marking. 2. Do not add names to list. 3. Completely fill the mark position you are marking. 4. Erase completely marks you wish to change. 5. Contact the school office with questions you may have.

STUDENT	GRADES THIS PERIOD	PLUS OR MINUS	EFFORT GRADE	EXAMINATION	AVERAGE	FINAL	PREVIOUS GRADES	
							3	4
██████████, THOMAS	A B C D E F A	+	1 2 3 4				CCB	CCC
██████████, LYN							CBA	BCB
██████████, MELIN	A B C D E F A	+	1 2 3 4				BBB	BCB
██████████, SCOTT							CCB	CCC
██████████, RIC		-	2 3 4				FCC	CCB
██████████, MARJOR							DCB	CDC
██████████, GART		+	2 3 4				JCC	CCC
██████████, ROB							CBB	BBB
██████████, LAVIN	A B C D E F A	+	2 3 4				CBC	CCC
██████████, SANDRA							CBB	BCB
██████████, TERRY		+	2 3 4				CBC	CCC
██████████, JEFF							AAA	AAA
██████████, LAU	A B C D E F A	+	2 3 4				AAA	AAB
██████████, EILEE							BBB	BBA
██████████, GEOF	A B C D E F A	+	1 2 3 4	A			CCB	CDC
██████████, WI							JCC	CCC
██████████, THOMAS	A B C D E F A	+	2 3 4				FCC	DDC
██████████, JOHN							DBB	CCC
██████████, KAT	A B C D E F A	+	1 2 3 4				CBC	CBC
██████████, ANIT							AAA	ABB
██████████, SHARIE	A B C D E F A	+	1 2 3 4	A			CCB	CCD
██████████, PAME							CCC	CDC
██████████, DIAN	A B C D E F A	+	2 3 4	A B C D E F A			BAA	BBA
██████████, DE							CBB	BCB
██████████, JAMES	A B C D E F A	+	2 3 4				CCB	CBA
██████████, R							CBA	BCB
██████████, AARON	A B C D E F A	+	2 3 4				CBB	BBB
██████████, NANCY							BCB	BBB
██████████, KRISTI	A B C D E F A	+	1 2 3 4				BCC	CCD
██████████, SUS							CBC	CCD
██████████, GREG	A B C D E F A	+	1 2 3 4	A B			CBB	BBB
	A B C D E F A	+	1 2 3 4	A B				
	A B C D E F A	+	2 3 4	A B C				
	A B C D E F A	+	1 2 3 4	A B				
	A B C D E F A	+	1 2 3 4	A				
	A B C D E F A	+	1 2 3 4	A B				
	A B C D E F A	+	2 3 4					
	A B C D E F A	+	2 3 4	A B				

PAGE	1	2	3	4	5	6	7	8	9
SCHOOL	1	2	3	4	5	6	7	8	9
ID	1	2	3	4	5	6	7	8	9

INSTRUCTIONS:

1. Use pencil only for marking.
2. Do not add names to list.
3. Completely fill the mark position you are marking.
4. Erase completely marks you wish to change.
5. Contact the school office with questions you may have.

STUDENT'S NAME	GRADES THIS PERIOD			
BALL, PATTY A	READING	A B C D F	READING LEVEL	EFFORT
	LANGUAGE			CONDUCT
	HANDWRITING	A B C D F	ART	CLASS PARTICIPATION
	SPELLING		MUSIC	CREATIVITY
	ARITHMETIC	A B C D F	PHYSICAL EDUCATION	GENERAL ATTITUDE
	SCIENCE AND HEALTH			SOCIAL HABITS
	SOCIAL STUDIES	A B C D F		STUDY HABITS AND WORK SKILLS
GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR				
BARNETTE, MARY L	READING	A B C D F	READING LEVEL	EFFORT
	LANGUAGE			CONDUCT
	HANDWRITING	A B C D F	ART	CLASS PARTICIPATION
	SPELLING		MUSIC	CREATIVITY
	ARITHMETIC	A B C D F	PHYSICAL EDUCATION	GENERAL ATTITUDE
	SCIENCE AND HEALTH			SOCIAL HABITS
	SOCIAL STUDIES	A B C D F		STUDY HABITS AND WORK SKILLS
GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR				
BLEDSUE, LAURA K	READING	A B C D F	READING LEVEL	EFFORT
	LANGUAGE			CONDUCT
	HANDWRITING	A B C D F	ART	CLASS PARTICIPATION
	SPELLING		MUSIC	CREATIVITY
	ARITHMETIC	A B C D F	PHYSICAL EDUCATION	GENERAL ATTITUDE
	SCIENCE AND HEALTH			SOCIAL HABITS
	SOCIAL STUDIES	A B C D F		STUDY HABITS AND WORK SKILLS
GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR				
DUNCAN, GREGORY A	READING	A B C D F	READING LEVEL	EFFORT
	LANGUAGE			CONDUCT
	HANDWRITING	A B C D F	ART	CLASS PARTICIPATION
	SPELLING		MUSIC	CREATIVITY
	ARITHMETIC	A B C D F	PHYSICAL EDUCATION	GENERAL ATTITUDE
	SCIENCE AND HEALTH			SOCIAL HABITS
	SOCIAL STUDIES	A B C D F		STUDY HABITS AND WORK SKILLS
GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR				
EDMONDS, HAROLD J	READING	A B C D F	READING LEVEL	EFFORT
	LANGUAGE			CONDUCT
	HANDWRITING	A B C D F	ART	CLASS PARTICIPATION
	SPELLING		MUSIC	CREATIVITY
	ARITHMETIC	A B C D F	PHYSICAL EDUCATION	GENERAL ATTITUDE
	SCIENCE AND HEALTH			SOCIAL HABITS
	SOCIAL STUDIES	A B C D F		STUDY HABITS AND WORK SKILLS
GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR				
FORRY, MICHAEL A	READING	A B C D F	READING LEVEL	EFFORT
	LANGUAGE			CONDUCT
	HANDWRITING	A B C D F	ART	CLASS PARTICIPATION
	SPELLING		MUSIC	CREATIVITY
	ARITHMETIC	A B C D F	PHYSICAL EDUCATION	GENERAL ATTITUDE
	SCIENCE AND HEALTH			SOCIAL HABITS
	SOCIAL STUDIES	A B C D F		STUDY HABITS AND WORK SKILLS
GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR				

HOMEROOM NO. **007**

TEACHER

GRADING PERIOD

6DISTRICT CODE **300**

SCHOOL

LINCOLN JR HIGH

CODE

301

PAGE	1	2	3	4	5	6	7	8	9	10
SCHOOL	1	2	3	4	5	6	7	8	9	10
ID	1	2	3	4	5	6	7	8	9	10

INSTRUCTIONS:

1. Use pencil only for marking.
2. Do not add names to list.
3. Completely fill the mark position you are marking.
4. Erase completely marks you wish to change.
5. Contact the school office with questions you may have.

STUDENT'S NAME	DAYS PRESENT	DAYS ABSENT	TIMES TARDY
ARCHER, LARRY G	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
CHANEY, JAMES E	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
CRITES, DAVID F	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
DOBKINS, CHARLES L	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
FLANNERY, RICKY	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
HIMES, DONALD R	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
HIPPS, TOM L	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
HOJNACKI, WAYNE	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
HOLMES, MARK	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
JARVIS, CHRISTOPH	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
KELLEY, DAVID L	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
MAHAN, DAVID L	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
PARSONS, JERRY W	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
PLACE, DANNY	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
REICH, STEVEN	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
SCHNELL, JAMES	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
SINDEL, JEFFREY L	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
SMITH, JOHN M	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
SULLIVAN, TERRY	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
(In many schools, these sheets are maintained and marked in the school office by an attendance clerk.)			
	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9
	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9	0 10 20 30 40 50 60 70 80 90 0 1 2 3 4 5 6 7 8 9

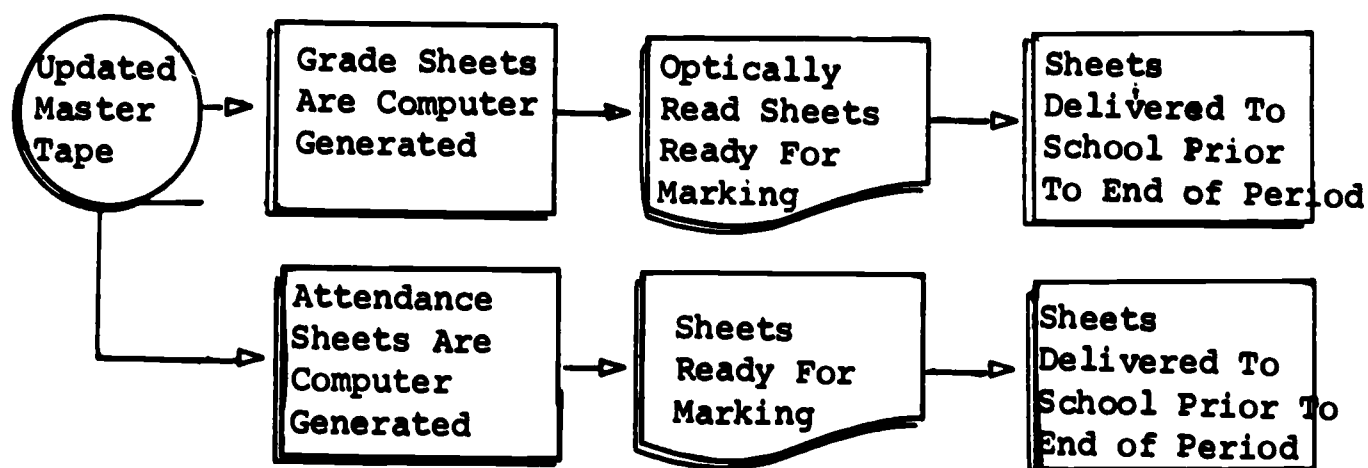


Fig. 2-5 - Preparation of Input For Teacher Marking

TEACHER PREPARATION OF INPUT

Once received by the teachers, each student's grades are recorded on the optical scanning sheets beside of his name. Marks are recorded with an ordinary No. 2 pencil. Since the Digitek 100 can discriminate between the intensity of two or more marks and select the darkest, eraser marks do not effect reading providing a correct mark is re-entered to take the place of the incorrect mark which has been removed.

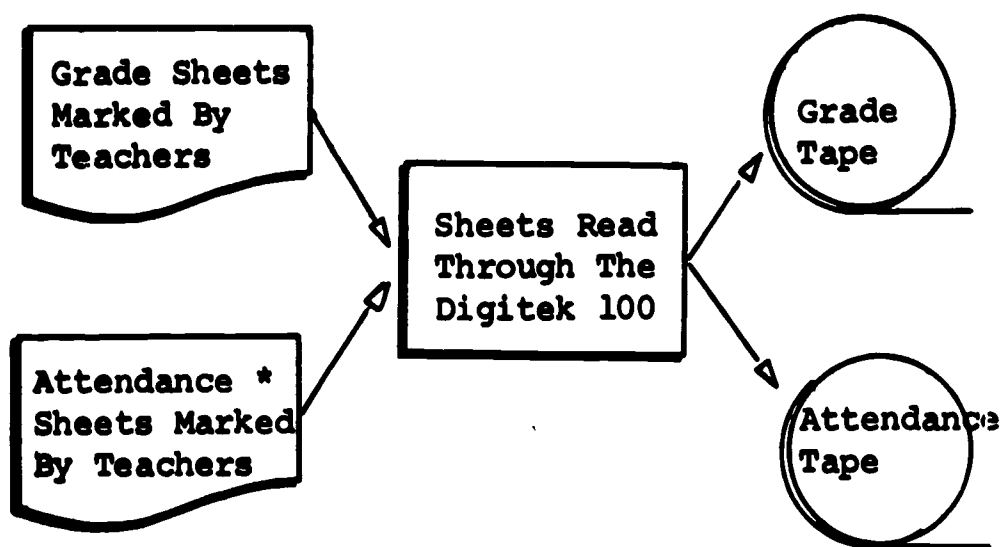
During the time that the sheets are in the possession of the school, extreme care should be exercised in handling. Dirt, smudges, and "stray" pencil marks can cause misreads. Torn and "dog-eared" sheets can "jam" the reader.

Once sheets are marked and ready for processing, the following must receive consideration by those responsible within the district.

1. All sheets for each school within the district must be returned before processing can begin for the district.
2. Sheets marked by new teachers and teachers who have experiences some difficulty should be "spot" checked for proper marking.

PROCESSING GRADE-ATTENDANCE DATA

Upon receiving the teacher marked sheets from a district, the center proceeds with the processing which eventually results in printed progress reports and various other reports and listings provided the schools. The first step involves reading the marked sheets.



As the sheets are passed through the Optical Scanner, all marks are read and tapes are created for use in processing. After completing the reading operation, the tapes created from this operation are used in updating student files for the district.

Fig. 2-6 - Teacher Marked Sheets Converted To Tape

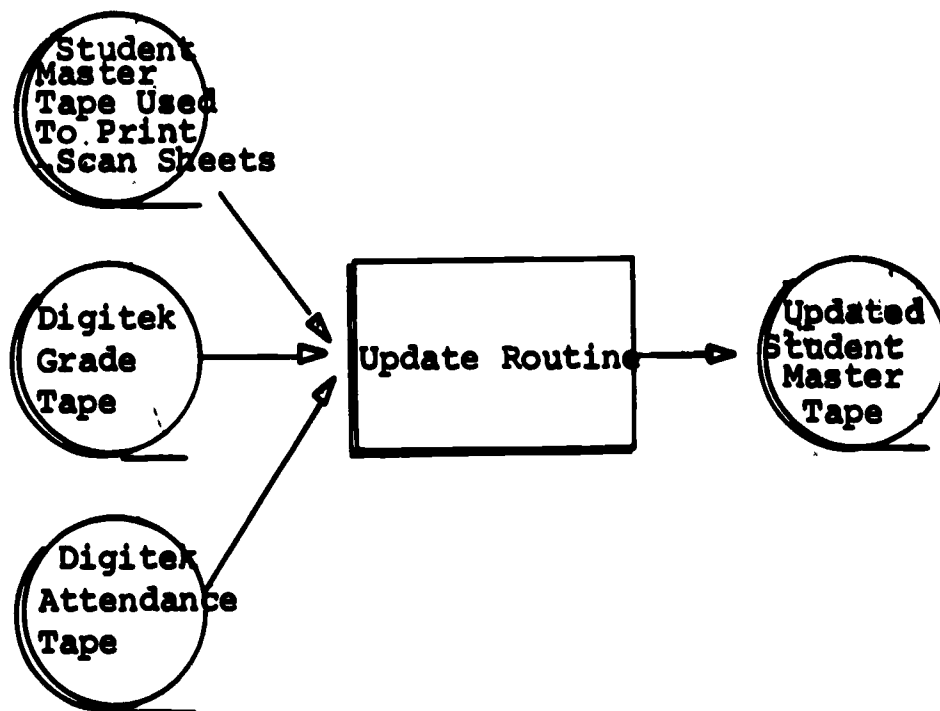


Fig. 2-7 - Updating of Master File For Progress Report Production

Using the updated master tape described above, progress reports and all other related listings and reports can be produced. A simplified description is illustrated below.

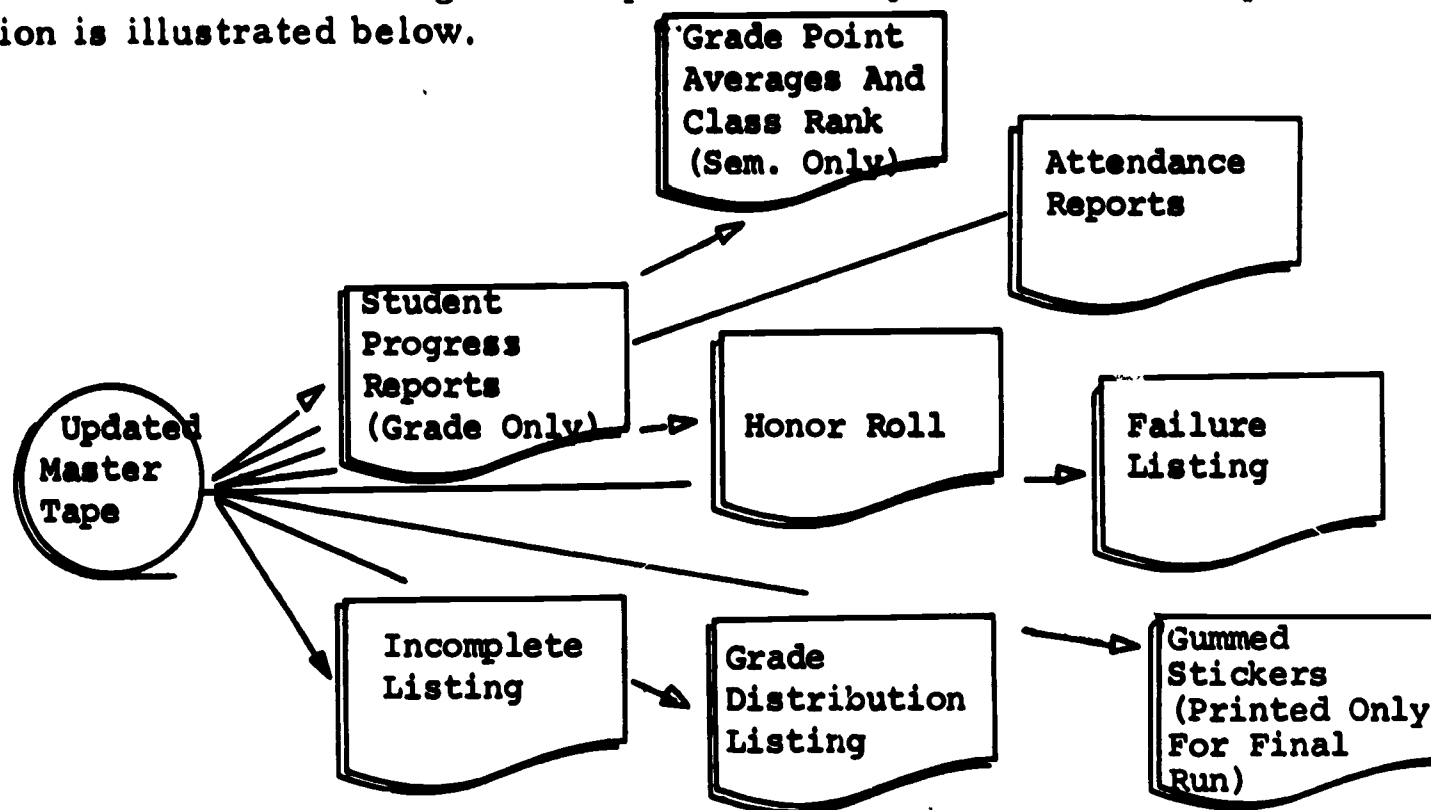


Fig. 2-8 - Reports Generated From Updated Master File

DESCRIPTION OF REPORTS GENERATED FROM TEACHER PREPARED INPUT

Comment is occasionally made by a teacher or administrator to the effect that it is as simple and easy to place a mark on a conventional grade card as it is to code it on a scan sheet. Considering that task alone and disregarding any and all other uses of the "mark," this is a valid observation. However, an evaluation of the entire process based upon this one phase of the overall Pupil Personnel System is meaningless. To develop a true appreciation of the effective use of the teacher prepared sheets, an analysis of all related reports (as well as the actual progress report or "grade card") must be made.

Student Progress Report

This report, produced as the first in the series of reports each grading period, is provided in multiple copies. Thus, in most cases, the student is not required to return his copy to the school. The report is also accumulative in nature meaning that all grades from previous periods appear on the report each time.

LINCOLN JUNIOR HIGH TELEPHONE: 471-2633 MARSHALL CUPP PRINCIPAL				FRANKLIN COUNTY SCHOOLS COLUMBUS, OHIO PROGRESS REPORT - JUNIOR & SENIOR HIGH SCHOOL			
---	--	--	--	---	--	--	--

I.D. NUMBER	STUDENTS NAME	SEX	GRADE	HOMEROOM	SCHOOL CODE	SCHOOL YEAR
[REDACTED]	[REDACTED] NANCY L	F	07	006	301	67 68

SUBJECT	TEACHER	1		2		3		SEM.		4		5		6		SEM.		YEAR FINAL	CREDIT
		ACH	EFF	ACH	EFF	ACH	EFF	EXAM	AVG	ACH	EFF	ACH	EFF	ACH	EFF	EXAM	AVG		
GEN MUS	BARR			A	1					A	1			A	1			A	
G P E 7	KISSEL			B	2					C	2			C	2			C	
SPELL 7	FAUKHAU	A	2	A	2	B	2			A	2	B	2	B	2			A	
ENG 7	FAUKHAU	A	2	B	2	A	2			B	2	B	2	C	2			B	
O WRLD H	FAUKHAU									B	2	B	2	C	2			B	
GEOG	FAUKHAU	B	2	C	2	C	2			B	2	C	2	C	2			C	
SCI 7	CALLAHA	C	2	C	2	C	2			C	3	D	3	C	2			C	
MATH 7	CALLAHA	C	2	B	2	B	2			C	3	B	2	C	2			C	
ORCH	KESSLER			A	1					A				A				A	
ART 7	DRUMMON			C	2					B	2			C	2			C	
GRADE POINT AVERAGE																			

ATTENDANCE	THIS PERIOD	TO DATE
DAYS PRESENT	20.0	171.5
DAYS ABSENT	4.0	8.5
TIMES TARDY		

FRED M DANIEL COUNTY SUPERINTENDENT OF SCHOOLS
--

LETTER ENCLOSED ☐

CONFERENCE REQUESTED BY:

PARENTS ☐ TEACHER ☐

Fig. 2-9 - Secondary Progress Report Illustrating Alphabetic Achievement Marks

Secondary systems have been developed to accomodate both alphabetic and numeric systems and a combination of each. Plus (+) and minus (-) marks are an option of the system. The report in Fig. 2-9 illustrates the use of alphabetic grades for academic achievement and numeric grades for effort. Fig. 2-10 illustrates the use of numeric grades for academic achievement and alphabetic grades for conduct.

BISHOP READY HIGH SCHOOL REV R J ENDRES TELEPHONE: 276-5263				DIOCESE OF COLUMBUS COLUMBUS, OHIO PROGRESS REPORT - JUNIOR AND SENIOR HIGH SCHOOL			
--	--	--	--	---	--	--	--

I.D. NUMBER	STUDENT NAME	PARISH CODE	SEX	GRADE	HOMEROOM	SCHOOL CODE	SCHOOL YEAR
100702	RICHARD L.	175	M	10	124	105	67-68

SUBJECT	TEACHER	SEM				SEM				YEAR FINAL	CREDIT	
		ACH	C-E	ACH	C-E	EXAM	AVG	ACH	C-E			EXAM	AVG
ENG 2	ANTHONY	71	U	76	U							
L RLGN 2	CIOTOLA	85	W	85	W							
BIO	DOHERTY	72	E	76	G							
PL SD G	DENNIS	71	S	71	W							
M DRAW 1	ROBB	77	G	75	G							
ART 1	SUSAN M	80	G	88	G							
CHOIR	CLARETT											
B P E 1	WONDERL	85	S	98	E							

GRADE POINT AVERAGE		
ATTENDANCE	THIS PERIOD	TO DATE
DAYS PRESENT	45.0	89.0
DAYS ABSENT	02.0	03.0
TIMES TARDY		

MSGR B C APPLGATE SUPERINTENDENT OF SCHOOLS
--

LETTER ENCLOSED ☐

CONFERENCE REQUESTED BY.

Fig. 2-10 - Secondary Progress Report Illustrating Numeric Achievement Marks

A brief analysis of the format of the secondary progress report shows the school district name preprinted in the upper right corner of the form, the building name, principal name, and telephone number computer printed in the upper left corner. Student identification data follows. Each subject, subject teacher, and grade is printed on the form by grading period. Attendance data are shown in both period and to-date form. The space (optional) for indicating "letter enclosed," "conference requested," etc., is marked

by the teacher if so desired. A typical example of the reverse side of the progress report form is illustrated in Fig. 2-11.

MESSAGE TO PARENTS

This report is sent to you regularly so that you may study your child's progress in school. Close cooperation between the home and school is necessary to the success of the educational process. By this report, we attempt to interpret to you how your child is responding to the basic aims of the school. We feel that no report form can show the complete development of your child. Therefore, we extend a cordial invitation to you to visit school and confer with the teacher concerning your child's work.

EXPLANATION OF GRADES

A -- EXCELLENT

B -- ABOVE AVERAGE

C -- AVERAGE

D -- BELOW AVERAGE

F -- FAILURE - NO CREDIT

I -- INCOMPLETE

W -- WITHDRAWN

E -- OUTSTANDING

S -- SATISFACTORY

U -- UNSATISFACTORY

TEACHER COMMENTS:

PARENT COMMENTS:

Your signature on this card does not necessarily mean that you approve of your child's record. It only indicates that you have seen the card.

SIGNATURE OF PARENT WHEN REQUIRED

672-A

Fig. 2-11 - Typical Example of Reverse Side of Progress Report

In most cases, an explanation of grades, a brief message to parents, and a space for comments appear on this side of the form. However, composition to some extent can vary according to the wishes of the school system.

Elementary systems vary somewhat from the secondary systems. In this situation, the teacher is concerned with giving several grades to one student and elective courses or subjects are not involved. The elementary teacher is also given the capability of awarding alphabetic and numeric grades. All other features of the system are the same as that of the secondary system with the added capability of indicating promotions at the end of the school year.

DEECHWOOD ELEMENTARY
TELEPHONE: 237-3184
JUNG W STELLER PRINCIPAL

WHITEHALL CITY SCHOOLS
WHITEHALL, OHIO
PROGRESS REPORT GRADES 1-6

I.D. NUMBER	STUDENT NAME	SEX	GRADE	HOMEROM	TEACHER	SCHOOL CODE	SCHOOL YEAR
	MARK D	M	04	003	DAVIS	952	67 68

REPORT PERIOD	ACADEMIC PROGRESS											WORK HABITS & SOCIAL GROWTH					
	READING	READING LEVEL	WRITING	SPELLING	ARITHMETIC	LANGUAGE	SOCIAL STUDIES	HEALTH AND SCIENCE	ART	MUSIC	INSTRUMENTAL MUSIC	PHYSICAL EDUCATION	UTILIZES TIME WELL	WORKS CAREFULLY	LISTENS WELL	FOLLOWS DIRECTION	HAS SELF CONTROL
FIRST	C		C	C	C	C	F	D					3	3	3	3	3
SECOND	C		C	C	C	C	D	D					3	3	3	3	3
THIRD	C		C	C	C	C	C	C	C			A	2	3	3	3	3
FOURTH	C		C	C	C	C	D	F					2	3	3	3	3
FIFTH	C		C	C	C	C	F	F					2	3	3	3	3
SIXTH	C		C	A	F	C	E	D	C			A	2	3	3	3	3
FINAL	C		C	C	C	C	D	D	C			A	2	3	3	3	3

DEAR PARENTS: In behalf of the Board of Education and faculty, I should like to extend to each of you a sincere invitation to visit your child's school. Your child's teacher and principal will welcome the opportunity to become acquainted, for I am sure you will agree that children profit most from their schooling when there is a close, effective partnership between the home and the school.

GILBERT A. JOHNSON
SUPERINTENDENT OF SCHOOLS

ASSIGNED TO GRADE	ATTENDANCE	THIS PERIOD	TO DATE
5	DAYS PRESENT	28.0	181.0
FOR NEXT SCHOOL YEAR	DAYS ABSENT	0.0	0.0

LETTER ENCLOSED ☐

CONFERENCE REQUESTED BY PARENTS ☐ TEACHER ☐

Fig. 2-12 - Typical Elementary Progress Report

Each elementary form contains spaces for six grading periods and a final grade. Many districts utilize the nine-weeks grading system. Therefore, only the first four and final areas on the report are used.

One limitation of the elementary form, as illustrated in Fig. 2-12 above is the number of grades or "marks" a teacher may utilize in reporting progress. It will be noted that no more than 27 grades or marks may be given each period. These may be either alphabetic or numeric. Plus (+) and/or minus (-) marks cannot be given at the elementary level. This feature is optional in the secondary system.

Like the secondary form, the elementary progress report comes in multiple copy. One carbon copy is standard with the elementary form

Related Reports

Following production of all grade reports for all districts, reports related to grading and attendance (pupil accounting) are produced. Examples typical of such are shown in Figures 2-13 through 2-19 on the following pages.

The Attendance Report, illustrated in Figure 2-13 is provided as a summary for use by the superintendent, principal, and attendance personnel. The report lists attendance for each individual for the period indicated, shows a boy-girl total by grade level for the period, gives the current total for the period by grade level, and provides a current, previous year-to-date, and current year-to-date attendance total by school. Totals appearing on the last page of the summary are utilized by administrative and attendance personnel in completing various state, county, and/or local reports. Routine computations by school personnel can be done to arrive at attendance averages and percentages. Plans are to develop a system in the near future to furnish all such calculations.

Since this summary is provided in three copies, it is highly recommended that each school principal furnish their superintendent with one copy for his use.

Each student receiving a failing grade(s) during a grading period will be reported to the school on the Failure Report. This listing, printed alphabetic-by-student, by grade level, is produced as an aid to guidance personnel. An example appears in Fig. 2-14. At present, this is a secondary school report only.

As an aid to the secondary subject teacher, an Incomplete Listing (see Fig. 2-15) is provided each period. The report is generated alphabetic-by-teacher and indicates the grading period and period during the day in which the student has incomplete work. Many schools post this report in an area frequented by teachers (teacher work areas, conference rooms, etc.) but not accessible to students. This, as well as the optical scanning sheets, serve to remind teachers what students have outstanding requirements and indicates that student records maintained at the center reflect incomplete work.

A listing provided the principal each grading period, the Grade Distribution Report (See Fig. 2-16) is printed in teacher sequence at present. The report is furnished to assist the principal in gaining an overall picture of individual grading guidelines and procedures. In an attempt to make the report more meaningful, it is planned that printing be done in teacher-subject (class) sequence in the future.

Currently, the system generates a listing by grade level of students with all "A's" and "B's" for each grading period which constitutes the honor roll. The report illustrated in Fig. 2-17 indicates the type of auxiliary reporting we wish to provide to the schools. While the format and data contained in the example (Fig. 2-17) are yet to be finalized, this serves to illustrate our direction of thought on the subject.

The gummed labels illustrated in Fig. 2-18 and Fig. 2-19 are generated at the end of each school year for posting student records. These stickers contain a summary of grades received during the year and attendance data for each student. Printed on pressure-sensitive stock, the stickers are easily attached to each pupil record by a clerical person and thus relieve teachers of this annual task.

STUDENT NUMBER	STUDENT NAME	SEX	DAYS PRESENT	DAYS ABSENT	TIMES TARDY	HR
169000	GARRY L	M	23.0	7.0	0	012B
169800	DEBORAH J	F	29.0	1.0	0	012B
171000	JOHN A	M	30.0	0.0	0	012B
171400	MARY E	F	27.5	2.5	0	012B
173400	KARREN	F	30.0	0.0	2	012A
175000	JEFF	M	27.5	2.5	0	012B
176400	BARBARA J	F	30.0	0.0	0	012B
177800	SUSAN J	F	24.5	5.5	0	012B
178600	JANET E	F	29.0	1.0	0	012B
181200	KUDNEY F	M	27.5	2.5	0	012B
183200	LINDA K	F	27.0	3.0	3	012B
184200	TOM L	M	29.5	0.5	7	012B
187200	HARRIS H	M	12.5	17.5	0	012B
189600	GREG	M	28.5	1.5	0	012B
191000	MARJORIE A	F	30.0	0.0	2	012B
191800	TOM L	M	28.0	2.0	0	012B
192200	LUNDY	M	24.0	6.0	1	012B
193000	JAMES H	M	29.0	1.0	0	012B

BOY 32 GIRL 24 TOTAL 1,570.5 109.5 34

GRADE LEVEL TOTALS

BOY 153 GIRL 132 TOTAL FOR SCHOOL 8,047.0 489.0 90

PREVIOUS ATTENDANCE 24,477.0 1,226.0 362

YEAR-TO-DATE ATTENDANCE 32,524.0 1,715.0 472

LAST PAGE - SCHOOL TOTALS

Fig. 2-13 - Attendance Report

FAILURES

JUNIOR HIGH

STUDENT NO	STUDENT NAME	TEACH NAME	TEACH CODE	SUBJ NAME	SUBJ CODE
104000	BARBARA	WILL	168	MATH 7	303
104000	BARBARA	HEINTZ	076	ARCHO 7	952
117400	JAMES P	GALE	060	SCI 7	201
123200	TIM	HEINTZ	076	ARCHO 7	952
124600	RICKEY	GALE	060	SCI 7	201
126585	DIANNE	WOODWAR	176	ENG 7	010
126585	DIANNE	DAVIS	040	U HISGO	101
126585	DIANNE	GALE	060	SCI 7	201
126585	DIANNE	WILL	168	MATH 7	303
126585	DIANNE	HEINTZ	076	ARCHO 7	952
128000	DALE	GALE	060	SCI 7	201
128000	DALE	WILL	168	MATH 7	303
128000	DALE	HEINTZ	076	ARCHO 7	952
128200	DAN	HEINTZ	076	ARCHO 7	952
131400	GUY	GALE	060	SCI 7	201
131400	GUY	HEINTZ	076	ARCHO 7	952
136000	DAVID	GALE	060	SCI 7	201
141600	WILLIAM M	HEINTZ	076	ARCHO 7	952
142000	SCOTT R	HEINTZ	076	ARCHO 7	952
143300	ALAN O	HEINTZ	076	ARCHO 7	952
153200	MARILY	DAVIS	040	U HISGO	101
153200	MARILY	GALE	060	SCI 7	201
153600	MIKE L	DAVIS	040	U HISGO	101
166000	MAC H	NEMETH	112	GPE 7	883
166000	MAL M	HEINTZ	076	ARCHO 7	952
174300	MARK	HEINTZ	076	ARCHO 7	952
180601	DARRELL	GALE	060	SCI 7	201

TOTAL

27

Fig. 2-14 -

JUNIOR HIGH

GRADE PERIOD-4

SUBJ NAME	SUBJ CODE	PERIOD	GRADE	HOME ROOM	GR LEVEL	GRADE PERIOD
MATH 7	303	3	F	007C	07	4
ARCHO 7	952	1	F	007C	07	4
SCI 7	201	8	F	007B	07	4
ARCHO 7	952	1	F	007C	07	4
SCI 7	201	7	F	007A	07	4
ENG 7	010	2	F	007A	07	4
U HISGO	101	6	F	007A	07	4
SCI 7	201	7	F	007A	07	4
MATH 7	303	4	F	007A	07	4
ARCHO 7	952	1	F	007A	07	4
SCI 7	201	5	F	007C	07	4
MATH 7	303	3	F	007C	07	4
ARCHO 7	952	1	F	007C	07	4
ARCHO 7	952	7	F	007B	07	4
SCI 7	201	7	F	007A	07	4
ARCHO 7	952	1	F	007A	07	4
SCI 7	201	5	F	007C	07	4
ARCHO 7	952	1	F	007A	07	4
ARCHO 7	952	7	F	007B	07	4
ARCHO 7	952	7	F	007B	07	4
U HISGO	101	3	F	007B	07	4
SCI 7	201	8	F	007B	07	4
U HISGO	101	2	F	007C	07	4
GPE 7	883	9	F	007B	07	4
ARCHO 7	952	7	F	007B	07	4
ARCHO 7	952	1	F	007A	07	4
SCI 7	201	07	F	007A	07	4

Fig. 2-14 - Failure Report

INCOMPLETES

██████████ JUNIOR HIGH

STUDENT NO	STUDENT NAME	TEACH NAME	TEACH CODE	SUBJ NAME	SUBJ CODE
100600	██████████, ROBER	HEINTZ	076	ARCHD 8	953
102800	██████████, CHARL	HEINTZ	076	ARCHD 8	953
104200	██████████, LELROY	HEINTZ	076	ARCHD 8	953
110596	██████████, BEVERLY	HEINTZ	076	ARCHD 8	953
111200	██████████, SCOTT	HEINTZ	076	ARCHD 8	953
136000	██████████, GENE K	HEINTZ	076	ARCHD 7	952

TOTAL 6

100600	██████████, ROBER	LOCKE	092	SCI 8	202
--------	-------------------	-------	-----	-------	-----

TOTAL 1

Fig. 2-15 -

PAGE

JUNIOR HIGH		GRADE PERIOD-4				
BJ NAME	SUBJ CODE	PERIOD	GRADE	HOME ROOM	GR LEVEL	GRADE PERIOD
CHU 8	953	1	1	008B	08	4
CHU 8	953	1	1	008B	08	4
CHU 8	953	1	1	008B	08	4
CHU 8	953	1	1	008C	08	4
CHU 8	953	1	1	008C	08	4
CHU 7	952	7	1	007B	07	4
CHU 8	202	4	1	008B	08	4

Fig. 2-15 - Incomplete Listing

FIG. 2-16 - GRADE DISTRIBUTION REPORT

		GRADE DISTRIBUTION						LINCOLN HIGH SCHOOL	
TEACH NAME	TEACH #	NO.A	NO.B	NO.C	NO.D	NO.F	NO.I	% A	% I
ANTOINE	006	10	18	26	28	4	1	11.5	20
ANTOINE	00L			1				00.0	00
BJERSTE	022	3	38	24	11	6	5	03.4	43
CANTY	058	13	17	18	16	20	3	14.9	19
CHRISTE	068	8	42	37	19	10	1	06.8	35
CHRISTE	102		1					00.0	100
DAY	124	8	23	25	12	17		09.4	27
DURETTE	159	4	21	19	10	37	1	04.3	22
FARST	160	77	8	6	1	1		82.8	08
ODELL	177	4	2	4	2	3		26.7	13
FISHER	184	3	15	7	7	9		07.3	36
FISHER	187					1		00.0	00
FOHS	191	6	15	20	14	14	19	06.8	17
GAISER	202	12	32	24	4	2		16.2	43
GOBLE	214	17	33	33	21	9	6	14.3	27
GRAYEM	220	45	29	28	28	36	4	26.5	17
HALEY	236	10	15	15	8	3	1	19.2	20
HARDY	240	26	28	24	14	8	8	24.1	27
HOWARD	266	20	23	15	10	17	9	21.3	27
HUNTER	280	19	14	22	8	8	6	24.7	17
CHRISTE	305			2				00.0	00
KESSLER	312	94	23	2		1		78.3	17

N HIGH SCHOOL

GRADE PERIOD-3

GR1140

NO.1	% A	% B	% C	% D	% F	% I	GRADES GIVEN
1	11.5	20.7	29.9	32.2	04.6	01.1	87
	00.0	00.0	100.0	00.0	00.0	00.0	1
5	03.4	43.7	27.6	12.6	06.9	05.7	87
3	14.9	19.5	20.7	18.4	23.0	03.4	87
1	06.9	35.9	31.6	16.2	08.5	00.9	117
	00.0	100.0	00.0	00.0	00.0	00.0	1
	09.4	27.1	29.4	14.1	20.0	00.0	85
1	04.3	22.8	20.7	10.9	40.2	01.1	92
	82.8	08.6	06.5	01.1	01.1	00.0	93
	26.7	13.3	26.7	13.3	20.0	00.0	15
	07.3	36.6	17.1	17.1	22.0	00.1	41
	00.0	00.0	00.0	00.0	100.0	00.0	1
19	06.8	17.0	22.7	15.9	15.9	21.6	88
	16.2	43.2	32.4	05.4	07.7	00.0	74
6	14.3	27.7	27.7	17.6	07.6	05.0	119
4	26.5	17.1	16.5	16.5	21.2	02.4	170
1	19.2	28.8	28.8	15.4	05.8	01.9	52
8	24.1	25.9	22.2	13.0	07.4	07.4	108
9	21.3	24.5	16.0	10.6	18.1	09.6	94
6	24.7	18.2	28.6	10.4	10.4	07.8	77
	00.0	00.0	100.0	00.0	00.0	00.0	2
	78.3	19.2	01.7	00.0	00.8	00.0	120

CLASS STUDENT RANKING

STUDENT NAME	ST. NBR	SEX	GRADE	FINAL POINTS	FINAL GRADES ONLY CREDIT	G.P.A.	RANK
BLAKEMAN, DAVID C	108400	M	10	4.750	4.75	2.053	48
SAYRE, JIM S	171200	M	10	4.750	4.75	2.053	46
LOSCHIARO, JULY C	149600	M	10	4.750	4.75	2.053	48
WIRTH, DONALD M	191200	M	10	10.000	5.00	2.000	51
SMITH, DAVID L	178200	M	10	11.000	5.50	2.000	51
HAYNAKD, MIKE M	104200	M	10	4.000	4.50	2.000	51
HARTMAN, SCOTT A	134400	M	10	4.000	4.50	2.000	51
HANNA, MARK A	130800	M	10	4.500	5.00	1.900	55
SMURR, DEBBIE L	178400	F	10	4.000	4.75	1.895	56
CRAIG, STEVE L	117000	M	10	8.500	4.50	1.889	57
BROWN, SAM A	112000	M	10	8.500	4.75	1.789	58
ROBERTS, LARRY E	107000	F	10	8.000	4.50	1.778	59
ALLENSWORTH, JENNIFER	101400	F	10	4.000	5.25	1.714	60
SHIPP, PATTIE M	175800	F	10	8.000	4.75	1.684	61
CARRUTHENS, SHARON S	114000	F	10	8.250	5.00	1.650	62
BARNHART, PAUL P	104400	M	10	7.750	4.75	1.632	63
WILLIAMSON, JAN	109800	F	10	8.500	4.00	1.625	64
STEMEN, GLENN A	181000	M	10	8.000	5.00	1.600	65
MCKINNEY, GARY L	153800	M	10	7.500	4.75	1.579	66
MOSATHOS, CHARLES	137801	M	10	7.000	4.50	1.556	67
COOK, TEDD A	117800	M	10	8.500	4.50	1.444	68
COAKLEY, RONNIE H	116000	M	10	7.500	4.00	1.375	69
PIERCE, TERESA A	103000	F	10	7.750	5.75	1.348	70
OHARA, JACK	101000	F	10	6.000	4.50	1.333	71
BOND, STEVEN H	104800	M	10	7.500	5.75	1.304	72
RINE, CAROLYN S	102200	F	10	7.500	4.75	1.158	73
COPAS, KUGEN M	116200	M	10	5.000	4.75	1.053	74
CRAGO, NINE J	110795	F	10	2.500	4.50	0.556	75

TOTAL STUDENTS IN CLASS 75

Fig. 2-17 - Grade Point Average - Class Rank Report

I.D. NUMBER		STUDENT NAME				SEX	GRADE	ROOM/ROOM	TEACHER		SCHOOL CODE	SCHOOL YEAR												
READING	READING LEVEL	LANGUAGE	HANDWRITING	SPELLING	ARITHMETIC	SCIENCE AND HEALTH	SOCIAL STUDIES	ART	MUSIC	PHYSICAL EDUCATION	EFFORT	CONDUCT	CLASS PARTICIPATION	CREATIVITY	GENERAL ATTITUDE	SOCIAL HABITS	STUDY HABITS AND WORK SKILLS							
ACADEMIC GROWTH							SPECIAL AREAS			PERSONAL DEVELOPMENT				ASSIGNED TO GRADE FOR NEXT SCHOOL YEAR <input type="checkbox"/> <table border="1"> <tr> <th colspan="2">ATTENDANCE</th> </tr> <tr> <td>DAYS PRESENT</td> <td></td> </tr> <tr> <td>DAYS ABSENT</td> <td></td> </tr> <tr> <td>TIMES TARDY</td> <td></td> </tr> </table>			ATTENDANCE		DAYS PRESENT		DAYS ABSENT		TIMES TARDY	
ATTENDANCE																								
DAYS PRESENT																								
DAYS ABSENT																								
TIMES TARDY																								

Fig. 2-18 - Elementary Record Label

STUDENT		DEBORAH E		SEX	F	GR	09	H.R.	100
YEAR	SCHOOL	CODE	SUBJECT	1ST	2ND	FINAL	CREDIT	TEACHER	
67-68	551	962	MUSIC	A	A	A	.50	CHUNKU	
		903	ENGLISH	A	A	A	1.00	BROWN	
		920	SCIENCE	B	A	A	1.00	CASSADY	
		913	MATH	C	D	C	1.00	MCCORMI	
		955	H ECUN	C	A	A	1.25	DAILY	
		943	FRENCH	C	B	B		SICKING	
		995	P E	B	A	A	.25	HAMM	
BROOKPAKK JK H									
ATTENDANCE									
PRESENT	173.0								
ABSENT	7.0								
TARDY	0.0								

Fig. 2-19 - Secondary Record Label

SECTION 3

PUPIL SCHEDULING

PUPIL CLASS ASSIGNMENT (SCHEDULING)

FUNCTIONS IN SECONDARY

SCHOOL ENVIRONMENT

Section III

Pupil Scheduling

At some period during the second semester of the school year, each secondary school which intends to use the computer for the assignment of students for the coming year requests and receives from the Center a student course election card. The card is similar to that illustrated below and contains basic identification data taken from the student master file. Since the basic data machine-printed on each card are already coded into the card, it is not necessary to re-enter such.

[illegible]

Fig. 3-1 Student Course Election Card

Following delivery of the Student Course Election Cards to the school, the registration activity is carried out according to the policies and wishes of the administration. Many schools prefer to prepare a Course Election Sheet listing all courses to be offered during the coming year which is completed at home by the student and his parents. These sheets are then reviewed by the student and his counselor and, if approved, the requests transferred to the SCE card. A typical registration sheet as prepared by the school and completed by the student and his parents is shown in Fig. 3-2. A completed SCE card is illustrated in Fig. 3-3.

REYNOLDSBURG JUNIOR HIGH SCHOOL - 701

STUDENT REGISTRATION FORM - 1966-67

LAST NAME	FIRST NAME	MIDDLE INIT.	SEX	NEXT YR. GRADE LEVEL	NEXT YR. H.R. NO.	STUDENT NO.	SCHOOL CODE
SMITH, JR.	STEVEN	L	M	9	-	-	701

HOUSE NO.	STREET NAME	CITY	ZIP CODE	PHONE NO.	AGE	DATE
2336	GILLETTE DR.	REYNOLDSBURG	43068	866-1234	14	Oct. 1 '66

7th GRADE

8th GRADE

9th GRADE

CODE	SUBJECT	CODE	SUBJECT	CODE	SUBJECT	CR.
<u>Required</u>		<u>Required</u>		<u>Required</u>		
010	English	024	English	(013)	English	1
301	Math	306	Math	322	Bus. Math	1
201	Science	202	Science		or	
106	World History	109	Am. History	(329)	Algebra I	1
807	Vocal Music	110	O. History (1 Sem.)	209	Biology I	1
752	Art	111	O. History (2 Sem.)		or	
882	Phys. Ed. (Boys)	585	Ind. Arts. (1st. Sem.)	(203)	General Science	1
883	Phys. Ed. (Girls)			(910)	Phys. Ed. (Boys)	1
997	Lunch	501	Home Ec. (1 Sem.)	911	Phys. Ed. (Girls)	1
	<u>Electives</u>	884	Phys. Ed. (Boys)	999	Lunch	
		885	Phys. Ed. (Girls)			
073	French I (Part 1)	998	Lunch		<u>Electives</u>	
826	Cadet Band		<u>Electives</u>			
		074	French I (Part 2)	087	Latin I	1
		842	Band	(096)	Spanish I	1
		814	Chorus	115	Civics & W. Geog.	1
		754	Art	076	French II	1
		501	Home Ec. (1st. Sem.)	408	Gen. Business	1
				611	Mech. Drawing	1
				(593)	Ind. Arts	1
				503	Home Economics	1
				(842)	Band	1
				816	Chorus	1
				759	Art I	1

S. S. Smith
Parent's Signature

Jones
Counselor

Ass't. Principal

Principal

Fig. 3-2 - Student Registration Form

NAME - LAST		FIRST		SEX	GRADE	STUDENT NO												DIST	
SMITH		STEVEN				1	2	3	4	5	6	7	8	9	10	11	12		
013		ENG																	
329		ALG I																	
203		GEN SCI																	
710		P.E.																	
C46		SPAN																	
543		IND ARTS																	
842		BAND																	

PLEASE PRINT ALL INFORMATION

NAME - LAST		FIRST		SEX	GRADE FOR THE NEW SCHOOL YEAR	HOME ROOM FOR THE NEW SCHOOL YEAR	STUDENT NO (TO BE ASSIGNED BY THE DATA CENTER FOR ALL NEW STUDENTS)
A		B					C

HANDLE CARD WITH CARE!

LAST-NAME		FIRST		SEX	GRADE	STUDENT NUMBER												DIST	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Fig. 3-3 Completed SCT Card

Phase 1

Once a school has completed all SCE cards, they are delivered to the Center for keypunching. A list of all courses offered by the school is also supplied the center. After the cards have been keypunched, the Tally and Paring Run (Phase 1) is made as illustrated in Fig. 3-4.

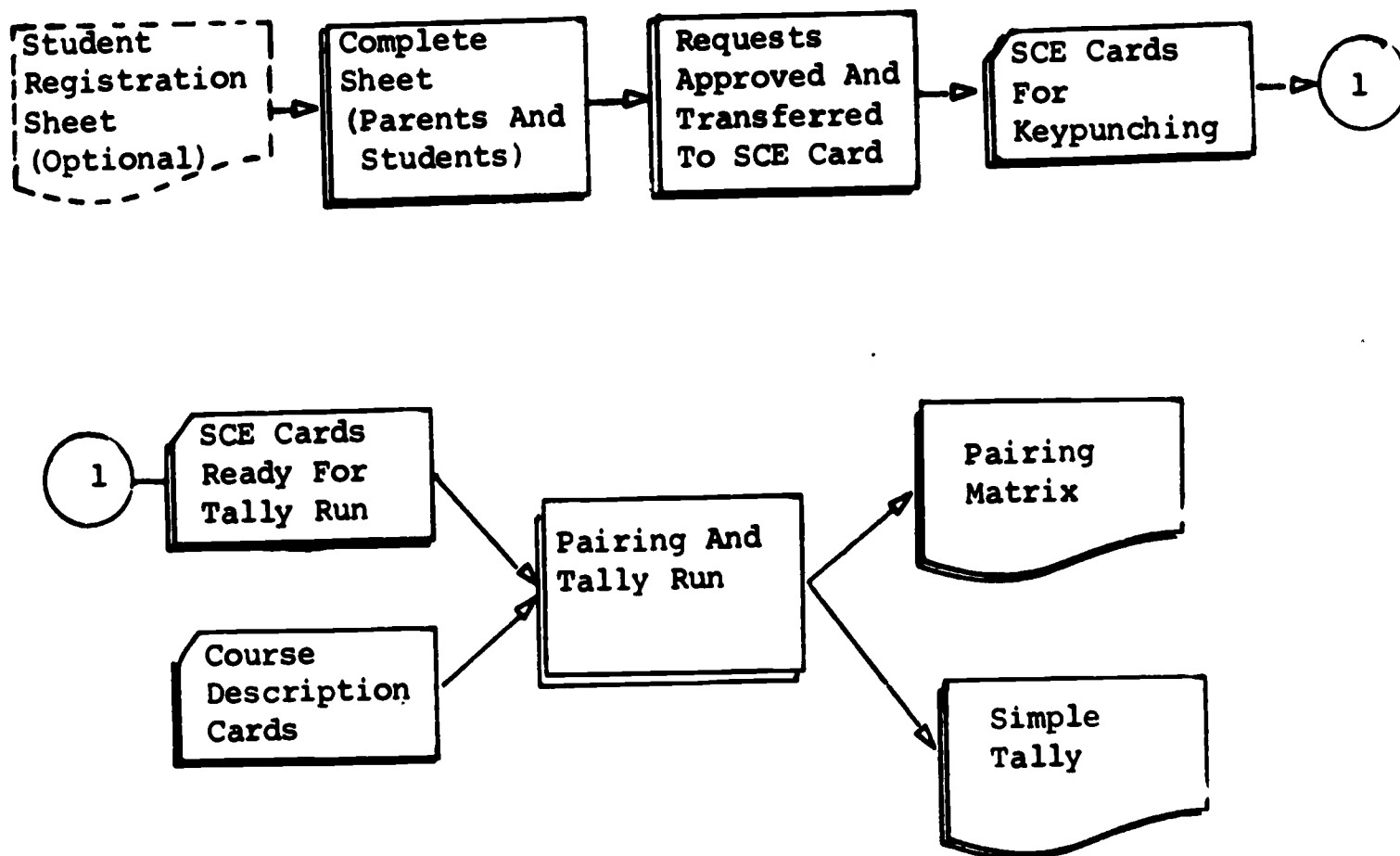


Fig. 3-4 - Initial Run For Tally and Paring

With the Tally and Pairing Matrix available, the principal can make certain basic decisions concerning his master schedule before he begins describing it. For example, a low number of requests for a subject might indicate to the principal that he cannot justify offering the course; a total of 95 requests, might indicate that four sections will be needed, etc. A typical Tally is illustrated in Fig. 3-5.

Once such decisions are made, the principal may begin to prepare his master schedule. From the Pairing Matrix, he can determine courses that may or may not be offered opposite one another. Figure 3-6 shows a typical Pairing Matrix. An example of how the Matrix is used can be seen by reading down the left column of the Matrix, Eng 4B (044), which had 29 elections. Reading across that line, the figure 16 indicates a high rate of conflict. Reading up that column, the course in conflict is 141. This could cause a problem. Reading down the line once more to the figure 54* and then across, 141 is found to be PAD. Since 54 have requested PAD, probably two sections will be offered and the chances of conflict with Eng 044 are reduced. Nevertheless, this tells the principal that he should space these courses out as much as possible in his schedule to avoid conflict.

By identifying all single and double offerings (commonly known as "singletons" and "doubletons") and spacing these courses in the master schedule, the principal greatly reduces the possibility of conflicting student schedules.

BLOOMINGTON HIGH		101	68/69	COURSE TALLIES						RUN 03/18/68	
COURSE DESC.	NO.	GRAND TOTAL	TOTAL	GR 09	GR 10	GR 11	GR 12	OTHER	MALE	OTHER	MALE
ENG 10 3R	018	48	14	34	9	22	1	1	1	1	1
ENG 11 3R	019	35	16	19	6	22	10	1	1	1	1
ENG 12 3R	020	7	2	5	39	29	1	1	1	1	1
ENG 10A	021	102	60	42	53	55	50	1	1	1	1
ENG 10 1	022	161	89	72	20	25	95	1	1	1	1
ENG 10 2	023	71	35	36	12	19	34	1	1	1	1
ENG 10 3	024	48	17	31	12	19	50	1	1	1	1
ENG 10 2	025	71	50	21	1	1	95	1	1	1	1
ENG 11A	026	172	98	74	1	1	34	1	1	1	1
ENG 11 1	027	91	36	55	1	1	53	1	1	1	1
ENG 11 2	028	62	23	39	1	3	21	1	1	1	1
ENG 11 3	029	97	41	56	1	1	41	1	1	1	1
ENG 12A	030	130	58	72	1	1	56	1	1	1	1
ENG 12 1	031	51	17	34	1	1	17	1	1	1	1
ENG 12 2	032	32	12	20	1	1	11	1	1	1	1
ENG 12 3	033	53	24	29	1	1	7	1	1	1	1
SPEECH	034	9	5	4	1	1	14	1	1	1	1
AD SPEECH	035	19	16	3	1	1	9	1	1	1	1
AEPIX	036	23	18	5	1	1	1	1	1	1	1
AEGIS	037	21	10	11	3	5	1	1	1	1	1
GERM I	038	19	7	12	1	6	7	1	1	1	1
GERM II	039	124	96	28	21	10	14	1	1	1	1
FRENCH I	040	78	53	25	1	1	6	1	1	1	1
FRENCH II	041	30	25	5	1	1	8	1	1	1	1
FRENCH III	042	15	8	7	1	1	1	1	1	1	1
FRENCH IV	043	99	53	46	6	8	1	1	1	1	1
LATIN I	044	76	45	31	23	18	25	1	1	1	1
LATIN II	045	43	26	17	1	1	16	1	1	1	1
LATIN III	046	21	8	13	1	1	8	1	1	1	1
LATIN IV	047	49	26	23	8	3	1	1	1	1	1
SPAN I 8	048	28	17	11	4	1	8	1	1	1	1
SPAN II	049	15	7	8	1	1	6	1	1	1	1
SPAN III	050	9	6	3	1	1	7	1	1	1	1
SPAN IV	051	186	89	97	16	25	17	1	1	1	1
ALG I	052	46	26	20	14	16	17	1	1	1	1
GEN ACL	053	184	97	87	54	41	1	1	1	1	1
GEOM I	054	67	24	43	15	27	1	1	1	1	1
G PAT ACT	055	44	8	36	2	18	11	1	1	1	1
G MATH II	056	21	11	10	1	1	12	1	1	1	1
ALGTRIG A	057	36	13	23	1	1	20	1	1	1	1
INT ALG	058	36	13	23	1	1	20	1	1	1	1
TRIG	059	36	13	23	1	1	20	1	1	1	1
PRE CAL A	060	11	2	9	1	1	1	1	1	1	1
COL ALG	061	42	4	38	1	1	3	1	1	1	1
ANAL GEOM	062	37	4	33	1	1	3	1	1	1	1
ALG II	063	47	18	29	1	1	2	1	1	1	1
BIOLOGY I-1	064	233	132	101	46	65	24	1	1	1	1
BIOLOGY I-2	065	67	21	46	9	22	7	1	1	1	1
CHEM I	066	86	46	40	1	1	35	1	1	1	1
CHEM 2	067	45	10	35	1	1	27	1	1	1	1
PHYS I	068	43	9	34	1	1	9	1	1	1	1

Fig. 3-6 - Typical Pairing Matrix

CENTRAL HIGH COURSE DESC.	NO.	COURSE NUMBERS										NUMBER OF POTENTIAL CONFLICTS BETWEEN COURSES 035 AND 135									
		TOTAL REQUESTS FOR COURSE 065					COURSE CONFLICT MATRIX					PAIR & TALLY MATRIX									
		01	044	045	046	048	049	090	091	110	115	116	120	125	126	130	135	140	141	146	155
TOTALS	010	29	14	94	71	118	26	26	26	281	21	168	157	7	118	160	21	184	20	54	49
ENG 1 E	011						7			53											
ENG 1 A	012						13			114											
ENG 1 B	013						14			112											
ENG 1 F B	014						15														
ENG 1 BUS	015						8														
ENG 1 GEN	016						12														
ENG 2 E	018						4														
ENG 2 A	020						9														
ENG 2 B	021						5														
ENG 2 F B	024																				
ENG 2 BUS	025																				
ENG 2 BUS	026						13														
ENG 2 GEN	028						6														
ENG 3 E	030						1														
ENG 3 A	031						3														
ENG 3 B	034						8														
ENG 3 F B	035						1														
ENG BUS	036						6														
ENG GEN	038						9														
ENG 4 E	040						2														
ENG 4 A	041																				
ENG 4 B	044	29	14	94	71	118	26	26	26	281	21	168	157	7	118	160	21	184	20	54	49
ENG 4 F B	045						1														
ENG 4 BUS	046						1														
ENG 4 GEN	048						1														
DEV READG	049						1														
CR WRIT.G	090						26														
P SPEAK.G	091						26														
ANC HIST	110						32														
CIVICS FB	115						3														
CIV BUS.	116						14														
WRLD HIST	120						15														
W HIST FB	125						10														
W HIST BG	126						10														
US HIST C	130						10														
US HIST FB	135						2														
US HISTBG	136						10														
WRLD PROB	140						3														
P.A.D.	141						2														
P.A.D.	146						24														
GEOGRAPHY	155						3														
GEOGRAPHY	158						2														
ECONOMICS	191						6														
ECONOMICS	196						30														
M MATH 1E	210						6														
MATH 1A	211						13														
MATH 1B	214						6														
ARITH FB	215						3														
ARITH BUS	216						6														
G MATH 1	218						1														
PHENMATHI	219						5														

Fig. 3-6 - Typical Pairing Matrix

16K

Fig. 3-7 - Typical Master Schedule Description

WRITING THE MASTER SCHEDULE

Once the principal has prepared a rough form of his schedule, he describes his proposed schedule for computer simulation. This is done on the form furnished by the Center and illustrated in Fig. 3-7. Specifications and instructions to assist the principal in describing his master schedule are provided by the center and a series of seminars conducted by personnel from the Center provides the principal with valuable information. The center also has personnel available to work on an individual basis with the principal at all times.

From the master schedule forms prepared by the principal, the center prepares a course master file on cards and the first simulation is made. Keep in mind that the schedule presented by the principal at this time is strictly a "proposed" schedule and can, and probably will, be adjusted following the first simulation or "trial run" on the computer.

First Simulation Run

The illustration below shows how the first simulation run is made.

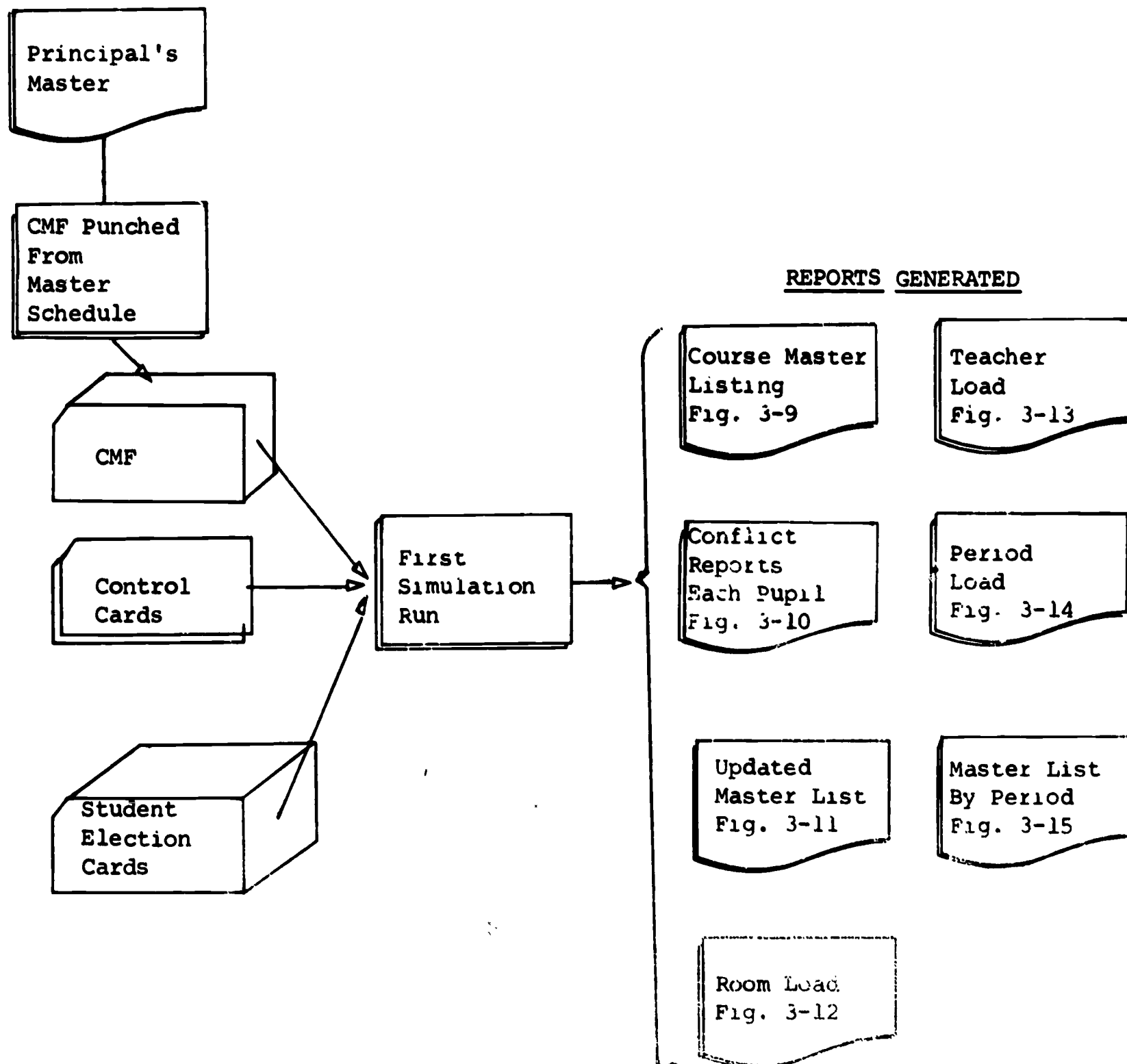


Fig. 3-8 - First Simulation Run

Several valuable reports and listings are generated for use by the principal at the time of simulation. Examples and a brief discussion of each follow.

CENTRAL HIGH		MASTER SCHEDULE LISTING							PAGE	011	
CRS NUM	COURSE DESCRIPTION	SEMES.	SECTION	PERIOD	ROOM	DAYS MET	CREDITS	SEATS AVAIL	PRIORITY CONTROL	INSTRUCTORS NAME	INSTR CODE
255	BIOLOGY	3	09	4	342	F	100	029	?	JOSEPH FISHER	504 00
255	BIOLOGY	3	09	5	342	ALL		029	?	JOSEPH FISHER	504 00
255	BIOLOGY	3	10	4	346	F	100	029	?	GEORGE CRONIN	503 00
255	BIOLOGY	3	10	5	346	ALL		029	?	GEORGE CRONIN	503 00
255	BIOLOGY	3	11	5	345	ALL	100	029	1	ROBERT POTTS	509 00
255	BIOLOGY	3	11	6	345	T		029	1	ROBERT POTTS	509 00
255	BIOLOGY	3	12	6	342	T	100	029	?	DOROTHY GANZ	505 00
255	BIOLOGY	3	12	7	342	ALL		029	?	DOROTHY GANZ	505 00
255	BIOLOGY	3	13	6	345	F	100	029	?	ROBERT POTTS	509 00
255	BIOLOGY	3	13	7	345	ALL		029	?	ROBERT POTTS	509 00
257	APPL CHEM	3	01	5	125	ALL	100	023		CHRIS VIGLIOTTA	512 00
257	APPL CHEM	3	02	3	227	ALL	100	023		CHRIS VIGLIOTTA	512 00
257	APPL CHEM	3	03	8	126	ALL	100	023		RAY KOBIELSKI	508 00

Fig. 3-9 - Course Master Listing

This listing is generated after the master schedule proposed by the principal is read into the computer. Numerous items in the proposed schedule are edited for errors and "warnings" printed on the master listing if possible problem areas are detected. Items such as missing sections, improper coding, etc. are checked before each simulation run.

Once the master schedule has completed the edit routine, student request cards are read and the computer attempts to schedule each student into the proposed master schedule. If a student is successfully scheduled, nothing is printed during simulation; the student's schedule

CONF: ICT - COURSE 999 - STUDENT NO 0020557 - NAME BELBACK SANDRA 00001
 120 147 409 511 911 999

***** AVAILABLE SECTIONS OF ELECTED COURSES (COMPUTER TRIES PATTERNS FROM LEFT TO RIGHT) *****									
PFR 1	.	.	0120 01 210127 04 210	.	.	0111 01 210	.	.	.
	.	.	0ALL S1 10ALL S3	.	.	0MT S3	.	.	.
PFR 2	.	.	.	.	.	0147 04 210111 03 210	.	.	.
	.	.	.	.	.	0ALL S3 0TR S3	.	.	.
PFR 3	.	.	.	.	.	0111 04 210	.	.	.
	.	.	.	.	.	0MW S3	.	.	.
PFR 4	409 01 230	.	.	.	.	0999 01 210147 04 210111 05 210	.	.	.
ALL S3	.	.	.	.	.	0ALL S3 0ALL S3 0TR S3	.	.	.
PFR 5	409 01 230	.	.	.	.	0999 10 210	.	.	.
ALL S3	.	.	.	.	.	0ALL S3	.	.	.
PFR 6	0511 01 210120 02 210122 02 210999 17 210	.	.	.	.	.	.	.	.
	0ALL S1 0ALL S1 10ALL S3 0ALL S3	.	.	.	.	.	.	.	.
PFR 7	.	.	.	.	.	0147 09 210111 04 210	.	.	.
	.	.	.	.	.	0ALL S3 0TR S3	.	.	.
PFR 8	.	.	0122 01 210	.	.	0147 03 210	.	.	.
	.	.	0ALL S3	.	.	0ALL S3	.	.	.
PFR 9	.	.	.	.	.	.	.	.	.

PFR 0	.	.	.	.	.	.	.	.	.

Fig. 5-10 - Individual Student Conflict Matrix

is written on tape and the next student's requests considered. If, however, a student cannot be scheduled, a matrix is generated showing the manner in which the computer attempted to schedule the student, the course creating the conflict, the number of attempts made to schedule before rejecting the student and other reference data. This matrix can be a very useful aid in adjusting individual student requests or the master schedule.

Once the computer has considered each student's request card, the simulation is complete and a total is printed indicating the number of students that could not be successfully scheduled. An updated master list is also generated showing the number of seats used, the number remaining, etc. This listing is most valuable in spotting poorly placed sections, periods requiring additional sections, etc.

67/68

CENTRAL HIGH

UPDATED MASTER SCHEDULE

COURSE NUMBER	SEC.	DESCRIPTION	SFM	DAYS	PER	PR/ CODE	ROOM	CREDIT	-----SEATS----- START OPEN USED	TEACHER NO. NAME
255	01	PHYSICS	3	ALL	31	1	202	100	28 05 23	236 JOHNSON ROBT.
255	01	PHYS LAB	3	W	3	1	202		28 05 23	236 JOHNSON ROBT.
255	02	PHYS LAB	3	TF	3	2	202	100	28 07 21	236 JOHNSON ROBT.
255	02	PHYSICS	3	ALL	4	2	202		28 07 21	236 JOHNSON ROBT.
255	03	PHYSICS	3	ALL	95	2	202	100	28 05 23	236 JOHNSON ROBT.
255	03	PHYS LAB	3	MT	8	2	202		28 05 23	236 JOHNSON ROBT.
255	04	PHYS LAB	3	RF	8	1	202	100	28 06 23	236 JOHNSON ROBT.
255	04	PHYSICS	3	ALL	9	1	202		28 06 22	236 JOHNSON ROBT.
255	05	PHYSICS	3	ALL	1	2	202	100	28 07 21	509 BATES DAVID
255	05	PHYS LAB	3	TR	2	2	202		28 07 21	509 BATES DAVID
255	06	PHYS LAB	3	WF	52	1	202	100	28 06 22	509 BATES DAVID
255	06	PHYSICS	3	ALL	5	1	202		28 06 22	509 BATES DAVID
256	01	SR SCI	3	ALL	3		211	100	32 02 30	105 JORDAN PAUL
256	02	SR SCI	3	ALL	9		003	100	32 04 28	105 JORDAN PAUL

Fig. 3-11 - Updated Master Schedule Listing

If, after careful study of the listings generated to this point, the principal wishes to make adjustments to his master schedule, room load and teacher load listings assist him in making sound and sensible modifications. These listings indicate rooms that are vacant each day and period, seats available in sections when the room is in use, etc. The teacher load reports is similar to the room load report, the one exception being that it is generated by teacher rather than room number sequence.

CENTRAL HIGH				ROOM LOAD REPORT				67/68	
COURSE NUMBER	SEC.	DESCRIPTION	SEM DAYS	PR/ PER CODE	ROOM	CREDIT	-----SEATS----- START OPEN USED	TEACHER NO. NAME	
259	01	HOME ROOM	3 ALL	00	126	100	24 14 10	512	VIGLIOTTA
259	01	CHEMISTRY	3 ALL	1	126		24 14 10	508	KOBIFLSKI
259	06	CHEMISTRY	3 MW	2	126		24 14 10	508	KOBIFLSKI
		CHEMISTRY	3 TR	2	126		24 14 10	507	HARRIS
		-----	1 F	2					
		-----	2 F	2					
259	05	CHEMISTRY	3 MW	3	126	100	24 14 10	501	SMITH
		-----	1 TRF	3					
		-----	2 TRF	3					
259	05	CHEMISTRY	3 ALL	4	126		24 14 10	501	SMITH
259	12	CHEMISTRY	3 MF	4	126	100	24 08 16	507	HARRIS
259	04	CHEMISTRY	3 TR	4	126		24 14 10	508	KOBIFLSKI
259	12	CHEMISTRY	3 ALL	5	126		24 08 16	507	HARRIS
259	07	CHEMISTRY	3 ALL	6	126	100	24 19 05	508	KOBIFLSKI
259	07	CHEMISTRY	3 MW	7	126		24 19 05	508	KOBIFLSKI
259	11	CHEMISTRY	3 TR	7	126	100	24 14 10	507	HARRIS
		-----	1 F	7					
		-----	2 F	7					
257	03	APPL CHEM	3 ALL	8	126	100	23 14 09	508	KOBIFLSKI

Fig. 3-12 - Room Load Listing

CENTRAL HIGH				TEACHER LOAD REPORT				67/68	
COURSE NUMBER	SEC.	DESCRIPTION	SEM DAYS	PR/ PER CODE	ROOM	CREDIT	-----SEATS----- START OPEN USED	TEACHER NO. NAME	
203	05	HOME ROOM	3 ALL	00	212		25 12 13	408	PHFLAN
		MATH 9	3 ALL	1	212	100		408	PHFLAN
		-----	1 ALL	2					
		-----	2 ALL	2					
207	07	MATH 11	3 ALL	3	212	100	27 17 10	408	PHFLAN
209	02	MATH 12A	1 ALL	4	212	050	25 14 11	408	PHFLAN
211	02	MATH 12B	2 ALL	4	212	050	25 18 07	408	PHFLAN
		-----	1 ALL	5					
		-----	2 ALL	5					
209	03	MATH 12A	1 ALL	6	212	050	25 08 17	408	PHFLAN
211	03	MATH 12B	2 ALL	6	212	050	25 05 20	408	PHFLAN
		-----	1 ALL	7					
		-----	2 ALL	7					
207	08	MATH 11	3 ALL	8	212	100	27 20 07	408	PHFLAN

Fig. 3-13 - Teacher Load Listing

CENTRAL HIGH		COURSE MASTER LIST - BY PERIOD										67/68
TOTAL UTILIZATION:		----- SEMESTER 1 -----					----- SEMESTER 2 -----					
PERIOD		MON	TUES	WED	THUR	FRI	MON	TUES	WED	THUR	FRI	
01		633	636	600	632	618	632	633	599	631	617	
02		592	582	586	582	565	586	576	580	576	559	
03		632	616	632	585	508	632	616	632	585	508	
04		685	533	609	533	520	679	527	603	527	516	
05		696	668	668	501	501	697	669	669	502	502	
06		693	536	695	685	513	696	537	696	686	516	
07		573	596	601	566	590	576	599	606	567	593	
08		606	583	606	613	606	605	586	605	616	605	
09												
10												

Fig. 3-14 - Period Load Listing

The period load listing provides the principal with an overall picture of period balance by semester. Each figure indicates the number of students assigned to a class each period. Therefore, by subtracting each figure from the total enrollment of the school, the principal knows the number of study hall seats he must have available each period.

The master listing by period, shown in Fig. 3-15, breaks the master schedule down into the more traditional manner which principals use in constructing the conventional master schedule. It also furnishes the principal with a section by section breakdown of the total figures provided by period in the period load listing and indicates the number of remaining seats available for use each period.

CENTRAL HIGH										67/68
COURSE NUMBER	SEC.	DESCRIPTION	SEM	DAYS	PER	PR/ CODE	ROOM	CREDIT	SEATS----- START OPEN USED	TEACHER NC. NAME
013	05	ENGLISH 3	3	ALL	32		009	100	32 05 27	722 BRILL JCAN
014	02	ENGLISH 3	3	ALL	32		020	100	32 05 27	143 GROSS CLARE
014	06	ENGLISH 3	3	ALL	32		024	100	32 05 27	287 BERTÉ STEPHEN
014	08	ENGLISH 3	3	ALL	32		217	100	32 04 28	295 CRONIN MARY
019	02	ENGLISH 4	3	ALL	32		005	100	32 05 27	642 DOBERT GERALD
021	01	ENGLISH 4	3	ALL	32		209	100	32 08 24	314 RUSSO FRANK
030	01	JOURN 2	3	ALL	32		027	100	32 12 20	452 MCBRIDE JOAN
040	01	DRAM 3	3	ALL	32		022	50	30 10 20	647 MCBRIDE KENNETH
103	02	U S HIST	3	ALL	32		211	100	32 03 29	520 HARRIS PATRICIA
103	11	U S HIST	3	ALL	32		210	100	32 04 28	962 ROGERS JAMES
113	01	GOVT POD	3	ALL	32		206	100	30 07 23	317 MURPHY MARY
113	04	GOVT POD	3	ALL	32		216	100	32 08 24	406 DIETSCHÉ IRA
211	02	ADV ALG	3	ALL	32		215	100	32 09 23	577 BROWN RAY
255	05	PHYS LAB	3	TR	32	2	003		28 07 21	509 BATES DAVID
255	06	PHYS LAB	3	WF	32	1	002	100	28 06 22	509 BATES DAVID
307	01	LATIN 3	3	ALL	32		007	100	32 17 15	335 JACKSON JAN

Fig. 3-15 - Master Listing By Period

Following the first simulation run, the principal, with the aid of the listings provided him, analyzes the results. Certain basic items must be evaluated and decisions reached as to how the results can be improved. The following constitutes fundamental areas of consideration:

1. Were any of the individual conflicts created by students requesting more subjects than could possibly be scheduled into the number of periods in the master schedule
2. Were conflicts the results of "singletons" and "doubletons" creating a "block-out" effect. Remember that when a section of a "doubleton" is offered opposite a "singleton," the remaining section of the "doubleton," for all practical purposes also becomes a "singleton." The same is true with two "singletons" offered opposite a "tripleton" course. In the example shown in Fig. 3-16, course 074 becomes a "singleton" since it is offered opposite "singleton" 025 first period.

3. Has one course conflicted sufficiently to justify moving it to another period in the master schedule.

4. Are there certain sections of a course that are "loading" poorly and might be opened up by moving it or another course in direct opposition to it (usually a "singleton").

PER 1	025 01 Z3*	*	*	*	*	*074 01 Z1*
	ALL S3 *	*	*	*	*	*MWF S3 *
PER 2	*	*	*	*	*842 01 Z1*	*
	*	*	*	*	*ALL S3 *	*
PER 3	*	*	*107 01 Z1*	*	*	*
	*	*	*ALL S3 *	*	*	*
PER 4	*	*	*	*	*	*074 02 Z1*
	*	*	*	*	*	*MWF S3 *
PER 5	*	*220 01 Z1*	*	*	*	*
	*	*ALL S3 *	*	*	*	*
PER 6	*308 01 Z1*	*	*	*	*	*
	*ALL S3 *	*	*	*	*	*
PER 7	*	*	*113 01 Z1*	*	*	*
	*	*	*ALL S1 *	*	*	*
PER 8	*	*	*	*	*	*
	*	*	*	*	*	*
PER 9	*	*	*	*	*	*
	*	*	*	*	*	*
PER 0	*	*	*	*	*	*
	*	*	*	*	*	*

Fig. 3-16 - Example of "Doubleton" Which Assumes "Singleton" Status

5. Do individual conflict charts indicate periods which do not contain requested courses. Note in Fig. 3-17 that periods 4, 8, and 9 are vacant of courses this student has requested.

PER 1	011 01 23*	*	*	*	*	*	*
	ALL S3 *	*	*	*	*	*	*
PER 2	*	*212 01 21*	*	*587 01 21*	*884 01 21*	*	*
	*	*ALL S3 *	*	*ALL S2	*MW S3	*	*
PER 3	*	*	*102 01 21*	*	*884 02 21*	*	*
	*	*	*ALL S3 *	*	*TR S3	*	*
PER 4	*	*	*	*	*	*	*
	*	*	*	*	*	*	*
PER 5	*305 01 21*	*	*112 01 21*	*587 02 21*	*	*	*
	*ALL S3 *	*	*ALL S2	*ALL S2 *	*	*	*
PER 6	*	*	*	*	*	*884 03 21*	*
	*	*	*	*	*	*MW S3	*
PER 7	*	*	*	*	*587 03 21*	*884 04 21*	*
	*	*	*	*	*ALL S2	*WF S3	*
PER 8	*	*	*	*	*	*	*
	*	*	*	*	*	*	*
PER 9	*	*	*	*	*	*	*
	*	*	*	*	*	*	*
PER 0	*	*	*	*	*	*	*
	*	*	*	*	*	*	*

Fig. 3-17 - "Open" Periods Related To Student Requests

After such considerations are weighed and the appropriate adjustments made, the second simulation run is made in exactly the same manner as the first. In certain situations, a third may be necessary before an acceptable master schedule is realized.

FINAL RUN

Shortly before school opens, the final run is made. This routine is illustrated below:

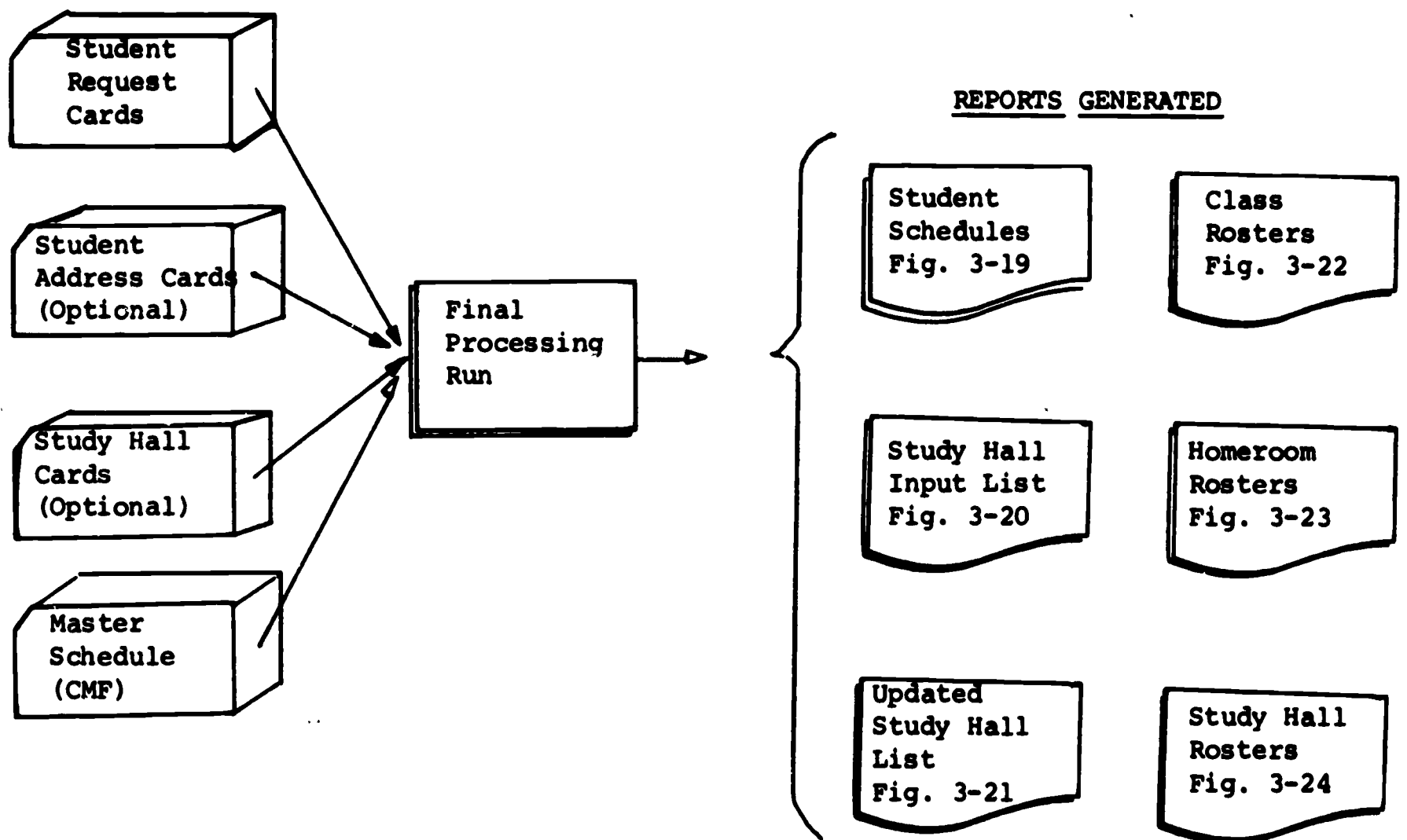


Fig. 3-18 - Final Run

Examples of each report produced at this time follow.

The student schedule is printed in multiple copy with two copies produced on heavy stock for filing purposes. Addresses can be included as an optional feature

PUPIL SCHEDULE				CENTRAL HIGH			
DUANE HENDRICKSON		10	306	67/68	04:01:52	M	0801275
STUDENT NAME		GRADE	HOME ROOM	SCHOOL YR.	BIRTH DATE	SEX	STUDENT NO
862 E NORTH WATER							
HOME ADDRESS		PARENT NAME		HOME PHONE			
COURSE DESCRIPTION	PERIOD	ROOM	CREDIT	SEMESTER	DAYS MET	INSTRUCTORS NAME	REMARKS
106 ENG 10G	01	435	1.00	3	ALL	GROUVER	
639 ADV ART	02	327	.50	1	ALL	WILKINS	
STUDYHALL	02	302		2	ALL		
205 MATH 10	03	214	1.00	3	ALL	SCALISI	
STUDYHALL	04	302		1	MTWR		
STUDYHALL	04	302		2	MTWR		
255 BIOLOGY	04	LB5	1.00	3	F	FISHER	
255 BIOLOGY	05	255		3	ALL	FISHER	
306 LATIN 2	06	009	1.00	3	ALL	BRADY	
912 PHYS ED	07	GYM	.25	3	ALL	ROBERTS	
137 HIST 10G	08	217	1.00	3	ALL	HERMAN	
* SEMESTER CODE 1 1st SEMESTER 3 BOTH SEMESTERS 2 2nd SEMESTER							

Fig. 3-19 - Student Schedule

Notice that semester codes designate yearly and single semester courses

The study hall input list is actually a "master schedule" for all study halls. Since study halls are not considered during the simulation runs, they do not come into the picture until this time. This listing indicates the section number, room number, and "dummy" section each period for "overflow" use.

SEMESTER	SECTION		ROOM	DAYS	SEATS AVAILABLE	
		PERIOD				
1	01	01	203	XXXXX	30	:
1	02	01	CAF	XXXXX	29	:
1	XX	01	XXX	XXXXX	99	:
1	01	02	203	X X X	30	:
1	02	02	CAF	XXXXX	28	:
1	XX	02	XXX	XXXXX	99	:
1	01	03	203	XXXX	20	:
1	02	03	CAF	XXXXX	13	:
1	XX	03	XXX	XXXXX	99	:
1	01	04	203	XXXXX	45	:
1	02	04	135	XXXXX	45	:
1	XX	04	XXX	XXXXX	99	:
1	01	05	203	XXXXX	68	:
1	02	05	135	XXXXX	68	:
1	XX	05	XXX	XXXXX	99	:
1	01	06	203	XXXXX	68	:
1	02	06	CAF	XXXXX	68	:
1	XX	06	XXX	XXXXX	99	:
1	01	07	203	XXXXX	30	:
1	02	07	CAF	XXXXX	23	:
1	XX	07	XXX	XXXXX	99	:
1	01	08	203	XXXXX	25	:

The seats available are also designated on this listing. An option at this point is to leave vacant periods in a student's schedule unassigned.

Following the final pass, an updated study hall list is also generated which is the equivalent of an updated master schedule. This listing (Fig. 3-21) shows the number of seats used each period of the day each semester. This affords the principal an overview of balance in study hall sections and guides him in assigning new students much in the same way as the Updated Master Schedule.

Fig. 3-20 - Study Hall Input Listing

STUDY HALL SUMMARY

SEATS	PER-SECT	ROOM	SEM	MON	TUE	WED	THU	FRI
065	1-01	213	1	049	055	065	057	061
065	1-02	215	1	050	043	061	035	040
065	2-01	213	1	064	062	065	062	065
065	2-02	215	1	053	054	057	054	065
065	3-01	213	1	043	046	043	065	062
065	3-02	215	1	041	052	041	065	052
065	4-01	213	1	052	043	052	043	052
065	4-02	215	1	000	000	000	000	000
065	5-01	213	1	039	058	039	058	039
065	5-02	215	1	000	000	000	000	000
065	6-01	213	1	048	057	065	059	062
065	6-02	215	1	049	045	061	037	041
065	1-01	213	2	061	057	065	055	049
065	1-02	215	2	040	035	061	043	050
065	2-01	213	2	062	065	062	065	062
065	2-02	215	2	054	057	054	065	054
065	3-01	213	2	043	046	043	065	062
065	3-02	215	2	041	052	041	065	052
065	4-01	213	2	043	052	043	052	043
065	4-02	215	2	000	000	000	000	000
065	5-01	213	2	058	039	058	039	058
065	5-02	215	2	000	000	000	000	000
065	6-01	213	2	049	055	065	057	061
065	6-02	215	2	050	043	061	035	040

Fig. 3-21 - Updated Study Hall List

Class Rosters (Fig. 3-22) are also generated in multiple copy for each section of each class. Identification information pertaining to each class as well as data on each student assigned to each section appears on this listing. Total enrollment by sex is also given at the end of each roster.

CENTRAL HIGH

09-67

COURSE 306-01 LATIN 2
TEACHER 986 BRADY FRANCESROOM 009 PERIOD 6
CREDITS: 100MEETS MTWRF
SEMESTER 1 6 2

NAME	SEX	GRADE	HR	STUDENT #	
ALDUINO	ABRAHAM	M	10	306	0100123
BARBARO	MARTHA	F	10	310	0203456
CATHAWAY	CELESTE	F	10	310	0301789
DESIO	ROSEANNE	F	10	306	0405000
DESSATTI	RAMONE	M	10	310	0404135
FORESTER	RICHARD	M	10	310	0604531
FURGUNSON	LORRAINE	F	10	306	0602351
GRAHAM	BARBARA	F	10	327	0700125
GUNTHER	RONALD	M	10	327	0705257
HENRICKSON	DUANE	M	10	306	0801275
HOWARD	SUSAN	F	10	310	0809527
HULLENDORF	HENRY	M	10	327	0813572
JOHANSEN	ELIZABETH	F	10	306	1003725
JOHNSON	DOUGLAS	M	10	306	1004752
KING	JOHN	M	10	306	1104310
KLINGER	KENNETH	M	10	327	1105301
KNUTSON	GREGORY	M	10	310	1103482
LINDERMAN	LAURA	F	10	306	1203428
SORENSEN	FRANCINE	F	10	327	2007249
FREEMAN	CHARLES	M	12	208	0601284
JORJENSON	JEFFREY	M	12	208	1005824
KING	MARGARET	F	12	208	1105842
THOMPSON	STEVEN	M	12	203	2113350

TOTAL 23 FEMALE 10 MALE 13

Fig. 3-22 - Class Roster

Homeroom Rosters (Fig. 3-23) are produced in much the same manner as class rosters. This roster is also produced in multiple copies and includes much the same data as the class roster.

NUMBER	TITLE	PER	INST	ROOM	CAYS	SEM	SCL
	HOME ROOM			306			
	CODE	PUPIL NAME	SEX	GRADE			
	102207	ALBERTSON DOLGLAS	M	10			
	100123	ALDUINO ABRAHAM	M	10			
	200270	BALBONI ANNETTE	F	10			
	263516	BARTON MARY	F	10			
	287561	BROWN HAROLD	M	10			
	306027	CHRISTOPOLOUS CARO	F	10			
	405000	DESIO RUSEANNE	F	10			
	417072	DOUGLAS GEORGE	M	10			
	514702	EVERETT IRVING	M	10			
	623015	FITZGERALD JENNI	F	10			
	620720	FRANKEL LISA	F	10			
	602351	FURGUNSON LORRAINE	F	10			
	732222	GORDON ARNOLD	M	10			
	801275	HENDRICKSON DUANE	M	10			
	896111	HOPE ANDREW	M	10			
	954333	INGLAS PETER	M	10			
	078666	JACOBSON PAUL	M	10			
	003725	JOHANSEN ELIZABETH	F	10			
	004752	JOHNSON DOUGLAS	M	10			
	138221	KELLY PATRICK	M	10			
	104210	KING JOHN	M	10			
	250110	LATHROP KENNETH	M	10			
	203428	LINDERMAN LAURA	F	10			
	329305	MCCONNELL JANET	F	10			
	347165	MCDONALD KELLY	F	10			
	327332	MCDUGAL KATHLEEN	F	10			
	342651	MORROW BRENDA	F	10			
	449443	NESMITH NORRINE	F	10			
	516554	OLEARY DIANA	F	10			
	535615	OLSEN JULIANNE	F	10			
	812156	REYNERTSON JEANNE	F	10			
	808035	RONNING DONALD	M	10			
	191510	TOMASSONE DAVID	M	10			
	361501	VOLLENDORF GARY	M	10			
	650150	ZELENT BRUCE	M	10			
TOTAL GIRLS	017	TOTAL BOYS	018	TOTAL STUDENTS	035		

Fig. 3-23 - Homeroom Roster

The Study Hall Roster (Fig. 3-24) is similar to the homeroom and class rosters except each day that the student is in the particular study hall is indicated. Rosters are printed on a period and semester basis to allow for single semester study halls. Totals by sex are also furnished.

CENTRAL HIGH

09-67

TEACHER 062 WELLS SARAH M ROOM 302 PERIOD 4 MEETS TRF
SEMESTER 2

NAME	SEX	GRADE	HR	STUDENT #	DAYS
HARRIGAN MAUREEN	F	09	103	0846531	TRF
SOERENSON PATRICIA	F	09	103	1997483	TRF

CENTRAL HIGH

09-67

STUDYHALL ROSTER - CONTINUED

NAME	SEX	GRADE	HR	STUDENT #	DAYS
NESMITH NORRINE	F	10	306	1449443	TR
OLEARY DIANA	F	10	306	1516554	RF
OLSEN JULIANNE	F	10	306	1535615	TRF
REYNERTSON JEANNE	F	10	306	1812156	TRF
RONNING DONALD	M	10	306	1808035	RF
SOERENSON FRANCINE	F	10	327	2007248	TF
TOMASSONE DAVID	M	10	306	2191510	TRF
VOLLENDORF GARY	M	10	306	2361501	TRF
ZELENT BRUCE	M	10	306	2650150	F
HARRIGAN KEVIN	M	11	218	0870204	F
PETERSEN JAMES	M	11	204	1619163	F
UNDERHILL RODNEY	M	11	218	2123165	T
VANDERHORN JASON	M	11	218	2264244	T
FREEMAN CHARLES	M	12	208	0601284	TRF
JONJENSON JEFFREY	M	12	208	1005824	TRF
KING MARGARET	F	12	208	1105842	TRF
RYNERTSON JUDITH	F	12	327	1880720	TRF
THOMPSON STEVEN	M	12	203	2113350	TRF
WILLARD LOUISE	F	12	323	2335035	RF
YOUNGER SCOTT	M	12	327	2585364	F
TOTAL	60	FEMALE	27	MALE	33

KELL JOHN	M	10	306	1104310	TF
KLINGER KENNETH	M	10	327	1105301	TF
KNUTSON GREGORY	M	10	310	1103482	TF
LATHROP KENNETH	M	10	306	1250110	TF
LINDERMAN LAURA	F	10	306	1203428	T
MCCONNELL JANET	F	10	306	1329305	F
MCDONALD KELLY	F	10	306	1347165	TRF
MCDUGAL KATHLEEN	F	10	306	1327332	T
MORROW BRENDA	F	10	306	1342651	T

CONTINUED ON NEXT PAGE

Fig. 3-24 - Study Hall Roster

In the final analysis, the following can be said of computerized pupil scheduling:

1. The principal, within the limits of this method of computerized scheduling (here we refer to the "class loading" system) retains total control over his master schedule and, to a great degree, over individual student schedules.

2. The very fact that the principal is in control of the scheduling process makes it a "must" that he prepare a sound and logical master schedule. A master schedule that is not functional manually is no better when computerized.

3. Since so many items are thoroughly edited before processing by the computer, personnel collecting data for scheduling must pay particular attention to detail. Bad data assures tragic results.

4. While it is possible to complete scheduling for a school in a relatively short period of time, schools should not delay this task. It is definitely advantageous for all concerned to begin the scheduling function during the early part of the second semester.